



MAWAZO
INSTITUTE
WOMEN LEADING RESEARCH IN AFRICA

**SURVEY REPORT:
THE IMPACT OF COVID-19
ON AFRICA'S HIGHER
EDUCATION SYSTEM**

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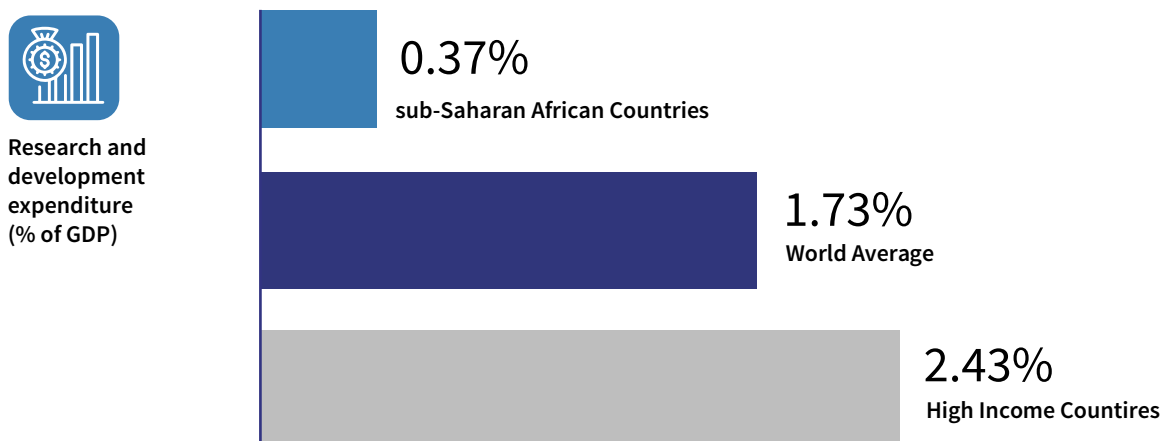
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1 | Introduction

The unexpected shock of COVID-19 restrictions has put stress on research and higher education worldwide, worsening many pre-existing inequalities as a result. Globally, the pandemic affected classroom teaching in up to 98% of higher education institutions, with distance learning replacing classroom teaching in most, and has affected research in up to 80% of higher education institutions, especially due to the cancellation or postponement of international travel and scientific conferences (Marinoni et al., 2020). At the same time, women have reported more declines in article submissions and research productivity when compared to men (King & Frederickson, 2021; Krukowski et al., 2021; Squazzoni et al., 2021), and have been disproportionately burdened by childcare responsibilities when working from home (Krukowski et al., 2021; Manzo & Minello, 2020). Doctoral candidates and early career researchers, of all genders, have experienced negative impacts on their careers due to their limited ability to engage in research activities such as data collection and research dissemination, and the uncertainty introduced in research funding and employment contracts (Byrom, 2020).

Although Africa's research and higher education sector has grown in recent decades, it remains relatively small and vulnerable in comparison to those countries where data on the impacts of the pandemic is more widely available. Sub-Saharan Africa has a gross enrollment ratio for tertiary education of only 9.5% compared to a world average of 40.2%¹ and the equivalent of 99 full-time researchers per one million inhabitants compared to a world average of 1,235.² Despite sub-Saharan Africa accounting for approximately 14.65% of the global population,³ researchers based in the region produce only 1.8% of global scientific publications (Schneegans et al., 2021). Financially, sub-Saharan African countries spend only 0.37% of their GDP on research and development, compared to an average of 1.73% globally and 2.43% in high income countries,⁴ and taken together account for only 0.4% of total global expenditure on research and development (Schneegans et al., 2021).



¹The gross enrolment ratio for tertiary education is the number of people enrolled in tertiary education, regardless of age, as a fraction of the total college-age population. The data is available from the UNESCO Institute of Statistics (UIS) at <http://data.uis.unesco.org/index.aspx?queryid=3726>.

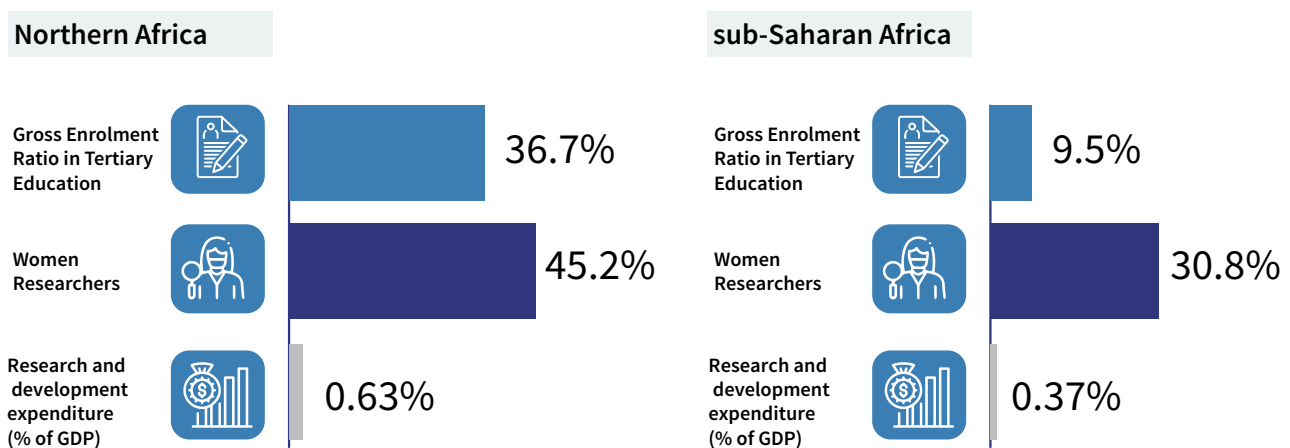
²Data available from UIS at <http://data.uis.unesco.org/index.aspx?queryid=64>.

³Data available from the World Bank at <https://data.worldbank.org/indicator/SP.POP.TOTL>.

⁴Data available from UIS at <http://data.uis.unesco.org/index.aspx?queryid=3684>.

Even prior to the COVID-19 pandemic, the challenges facing women and young researchers on the continent were especially acute. Women often have even lower rates of enrollment in tertiary education than men and account for only 30.8% of researchers in the region.⁵ Sub-Saharan African women who enter research and higher education take longer to graduate and publish less during their doctoral studies due to the direct and indirect consequences of sexism including gender insensitive university policies, disproportionate career losses for starting families, and sexual harassment (Fisher et al., 2020), and are comparatively less mobile, that is less able to travel to pursue education and career opportunities (Prozesky & Beaudry, 2019). Similarly, young researchers of all genders across Africa face a shortage of adequate mentorship, training, and research funding (Beaudry et al., 2018) as well as fewer opportunities for educational and career mobility than they would prefer (Prozesky & Beaudry, 2019).

Countries in Northern Africa fare better on some of the measures mentioned above. For instance, the region has a gross enrolment ratio of 36.7% in tertiary education, the equivalent of 715 full-time researchers per million inhabitants, research expenditures that are 0.63% of GDP, and has achieved gender parity in research with women accounting for 45.2% of researchers. However, except for the gender composition of the research community in Northern Africa, like the rest of the continent it falls below global averages on all these fronts and remains affected by challenges constraining women and young researchers.



Since Africa’s research and higher education sector is comparatively vulnerable and poorly-resourced compared to some of the geographies where existing research has been conducted, we may expect that the pressures applied by the COVID-19 pandemic would have similar or worse effects on African research and higher education. This expectation appeared to be true early on in the pandemic. For example, in June 2020 the Organization for Women in Science in the Developing World (OWSD) shared results from a survey it conducted among 1,470 women from 85 different countries (Organization for Women in Science for the Developing World, 2020). Among other things, OWSD found that 67% were unable to travel to conferences or other important work events, 56% were unable to perform experiments or field work, 31% were unable to teach, 21% unable to follow courses, 17% faced delays or suspensions in funding, 17% had difficulty finding collaborators, and 13% missed out on business opportunities and clients.

⁵ Data available from UIS at <http://data.uis.unesco.org/index.aspx?queryid=64>

Focusing specifically on Africa, the Mawazo Institute's 2020 survey of 501 individuals affiliated with higher education and research institutions across the continent reveals similar results (Mawazo Institute, 2020). For example, we found that 83% of respondents reported disruption to their classroom learning but only 39% said they were enrolled in institutions offering e-learning options. Another 73% of respondents who had been engaged in research activities before the pandemic, reported suspension of research activities in the lab or field because of COVID-19 restrictions. We also found that women were more affected, with more women (74.2%) than men (71.7%) reporting that they had suspended their lab or field research and more women (85.2%) than men (81.3%) reporting that their classroom learning had been affected by COVID-19 restrictions. Similarly, we found that there were differences between respondents of different ages and from different regions of Africa.

Inspired by trends emerging in the research conducted globally since 2020, Mawazo Institute prepared a more comprehensive survey of individuals in Africa's research and higher education sector that would follow up on questions we asked in our previous survey regarding the impact of COVID-19 restrictions on classrooms and research, as well as exploring other effects of the pandemic on the family and domestic responsibilities, productivity, and career growth of researchers based in Africa.

To this end, Mawazo Institute conducted outreach among students, educators, and researchers based in Africa using a variety of methods including: leveraging our existing contacts to identify other eligible respondents, relying on partner organisations to share the survey within their own network of contacts, and promoting the survey in newsletters that would reach our intended audience. We also frequently promoted the survey across Mawazo's social media platforms, where we have a following among African individuals affiliated with research institutions, universities, and non-profit organisations. The survey was open for two months, between 11th August 2021, and 15th October 2021, and received a total of 311 respondents. Different questions had different sample sizes ranging between 220 and 311 depending on the proportion of eligible respondents that answered it. With the responses we received, we are building a local base of data similar to that discussed above for other countries and regions.

We would like to thank all our respondents for taking the time to respond to the survey and to specially acknowledge the support offered by the **Partnership for Skills in Applied Sciences, Engineering and Technology's Regional Scholarship and Innovation Fund (PASET-RSIF)**, the **Organization for Women in Science for the Developing World (OWSD)**, **DevDispatch**, **Education Sub Saharan Africa (ESSA)**, and **AuthorAID** for supporting outreach during the survey's duration.

We would also like to thank the United Kingdom's Foreign, Commonwealth & Development Office's **Research and Innovation Systems for Africa (RISA) Fund**, which provided core funding for this project, as well as the other organisations that fund Mawazo's work across its programme areas, including the **Bill and Melinda Gates Foundation**, **Fondation L'Oréal**, the **International Development Research Centre (IDRC)**, the **Mastercard Foundation**, the **Open Society Foundations Africa Regional Office**, the **Open Society Initiative for Eastern Africa**, South Africa's **National Research Foundation**, and the **William and Flora Hewlett Foundation**.

As part of our commitment to open knowledge, anonymised data from our survey is available to researchers upon request. Email contact@mawazoinstitute.org for further information.



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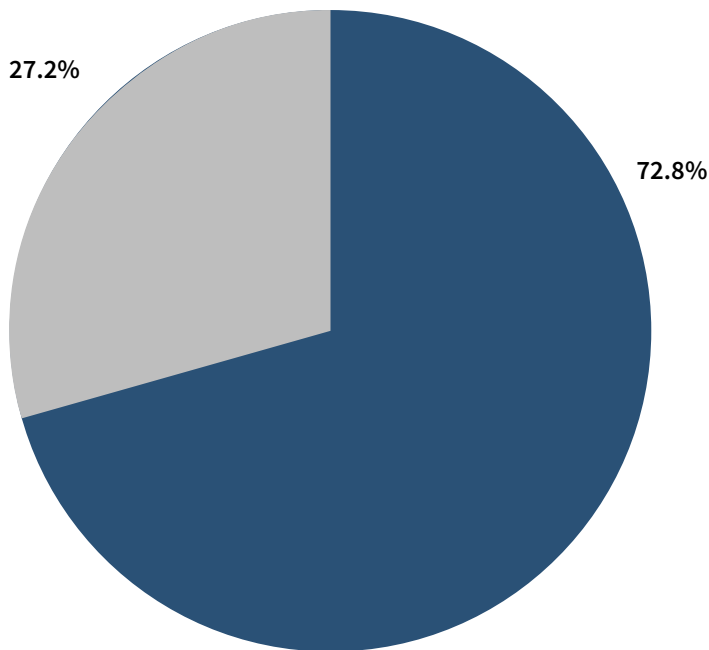
Demographics



Our 311 respondents were predominantly women (72.8%); aged between 20 and 29 years (21.5%), 30 and 39 (40.9%), or 40 and 49 (29.4%) with only 8.2% aged 50 or older; based in either East Africa (53.1%), Southern Africa (19.9%), or West Africa (16.3%); and affiliated with universities as either students (40.1%) or instructional staff (49.8%). The five best represented disciplinary groupings were ‘Natural Sciences, Mathematics, and Statistics’ (27.2%), ‘Health and Welfare’ (21.9%), ‘Agriculture, Forestry, Fisheries, and Veterinary’ (16.5%), ‘Social sciences, Journalism, and Information’ (10.8%), and Information and Computer Technologies (9.3%).⁶

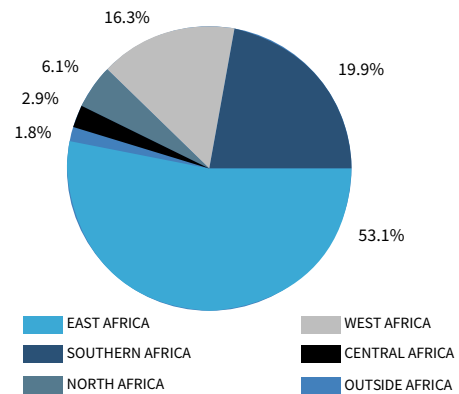
GENDER

n=279



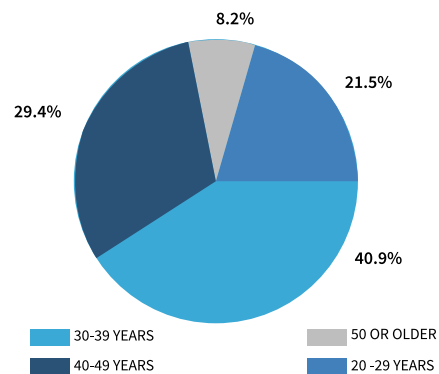
REGION

n=277



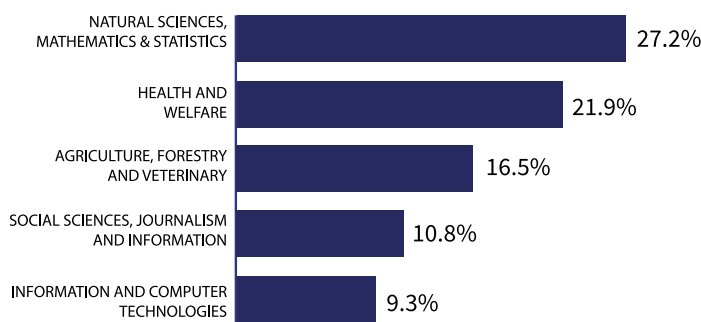
AGE

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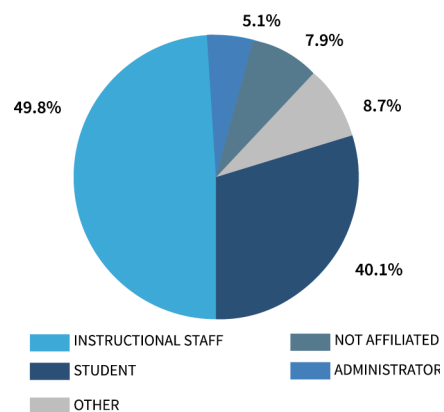
TOP 5 FIELD GROUPINGS

n=279



AFFILIATION WITH UNIVERSITIES

n=277



⁶ The broad disciplinary categories used in this survey and report were taken from the UNESCO International Standard Classification of Education: Fields of Education and Training 2013 (ISCED-F 2013) available online at <http://uis.unesco.org/en/topic/international-standard-classification-education-isced>. Each category contains multiple fields within it.

Cross tabulations between demographic categories revealed additional patterns key to understanding our results, among these are the following:

- **Different age groups had different gender balances.** For example, individuals aged 30-39 were more likely to be female than individuals aged 20-29 (80.7% female and 61.7% female, respectively).
- **Different regions had different gender balances.** Men were better represented among respondents based in East Africa (where they made up 34% of the region's respondents) than in any other region from which we received a moderately large number of responses. In fact, 66.7% of all male respondents were based in East Africa, compared to only 48% of women, who were more evenly distributed between regions of the continent.
- **Different fields had different gender balances.** For example, 'Natural Sciences, Mathematics and Statistics' fields had the largest share of female respondents (89.5%) while 'Social Sciences, Journalism, and Information' fields had the largest share of male respondents (43.3%), which may suggest that the men and women we reached were not representative of the wider research community in Africa, where natural scientists are predominantly male.
- **Different regions had different field balances.** For example, respondents in East Africa and respondents in North Africa were most likely to be in 'Health and Welfare' fields (18.5% and 27.3% respectively) while respondents in West Africa and respondents in Southern Africa were most likely to be in 'Natural Sciences, Mathematics, and Statistics' fields (33.3% and 31.3% respectively).
- **Different age groups had different field balances.** Similarly, younger individuals, aged 20-29 or 30-39, were more likely than average to be in 'Natural Sciences, Mathematics, and Statistics' and 'Information and Communication Technologies' fields, while older respondents were more likely than average to be in 'Agriculture, Forestry, Fisheries, and Veterinary' and 'Social Sciences, Journalism, and Information' fields.



3

The Institutional Context of the Pandemic

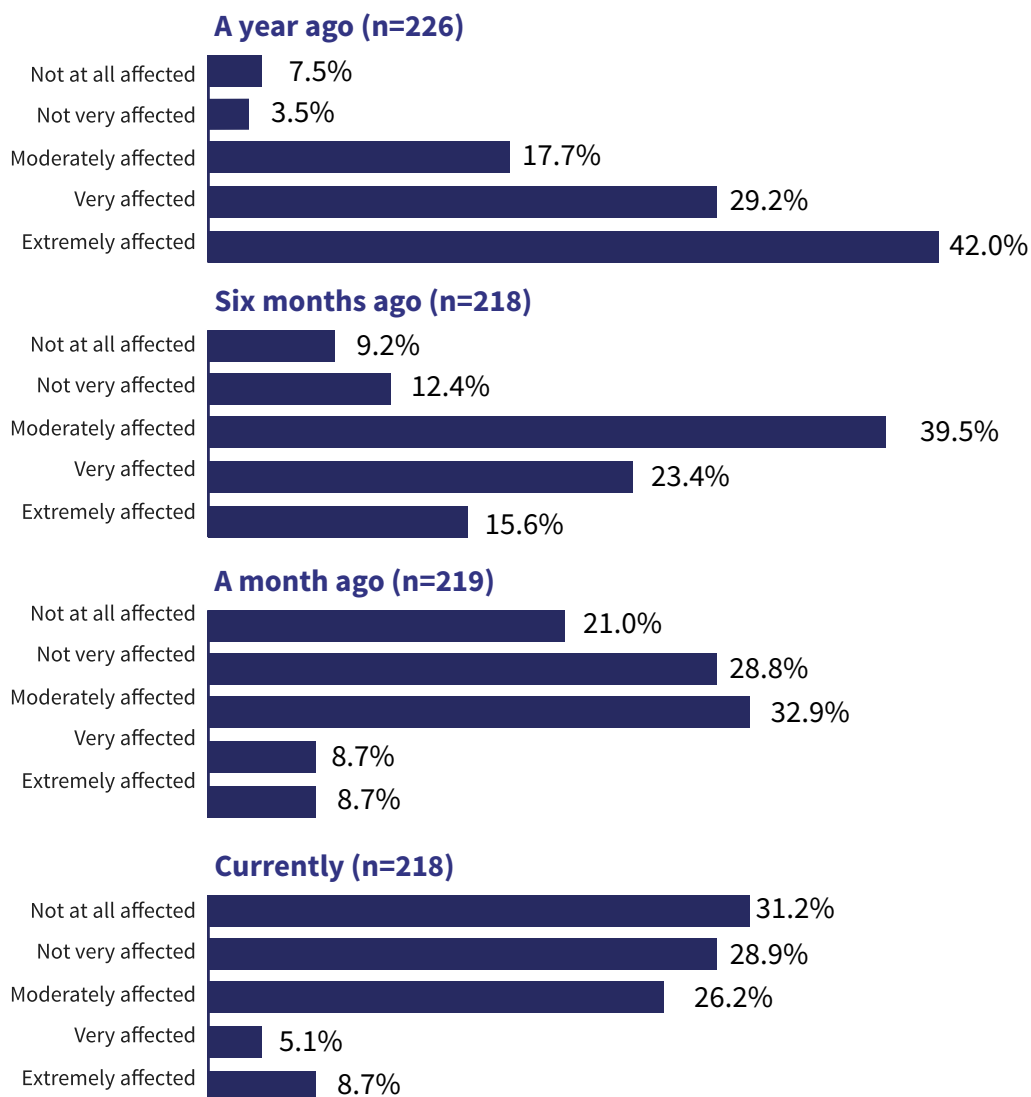


In the first part of our survey report, we focus on how our respondents experienced institutional responses to the COVID-19 pandemic in their classrooms and research, two essential domains where research and higher education institutions achieve the key goals of training students and producing knowledge. To this end, we asked about the scale and longevity of the pandemic’s impact on their classroom learning, the success with which their institutions had implemented quality e-learning options in response, and the scale and longevity of the impacts on their research activity.

3.1 | Effects on Classroom Learning

Overall, our respondents were very likely to say that their classroom learning had been affected by pandemic restrictions, with 90.1% of respondents reporting effects on their classrooms, defined to include school closures, reduced class sizes, the suspension or cancellation of classroom learning, or shifts to e-learning. However, these effects appear to be declining over time. As Figure 1 shows, respondents were less likely to say their classroom learning had been very or extremely affected in recent months. This suggests that institutions are adapting to the effects of the pandemic, either by introducing hybrid learning (i.e., incorporating both e-learning and in-person learning) or have begun to return to classroom learning as it was conducted before the pandemic.

Figure 1. Severity of pandemic effects on classroom learning over time.

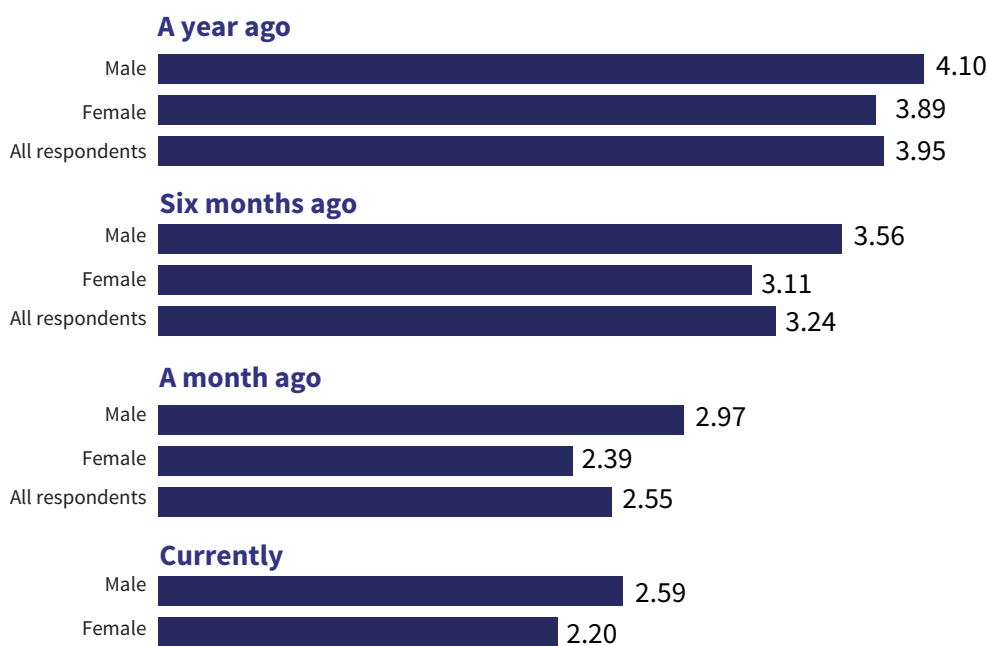


We calculated the average responses to the survey question on the effect of the pandemic on classroom learning⁷, which showed that a year prior to the survey our respondents' average rating of the effect of pandemic restrictions on classroom learning was closest to 'Very Affected' (at 3.95), while at the time of the survey the average rating of the effect of the pandemic was closest to 'Not Very Affected' (at 2.31), which suggests the situation is improving.

Gender differences: Examining gender, in our sample fewer women (88%) than men (93.6%) reported experiencing disruptions to their classroom learning at some point in time since the beginning of the pandemic. Interestingly, this is the opposite of the results found in Mawazo's 2020 survey, where women reported greater effects on their classroom learning than men. This could be a residual effect of the different fields represented by women and men in our group of respondents, as women made up 89.5% of respondents in the Natural Sciences, Mathematics, and Statistics, and respondents in these fields were among the least likely to report class disruptions. It could also suggest that women have been able to adapt to the effects of the pandemic more quickly than men.

As seen in Figure 2, this year's results were also consistent over time. For each period during the past year that our survey addressed, women, on average, reported that the pandemic had less severe effects on their classroom learning than men.

Figure 2. Average effects on classroom learning over time – by gender.

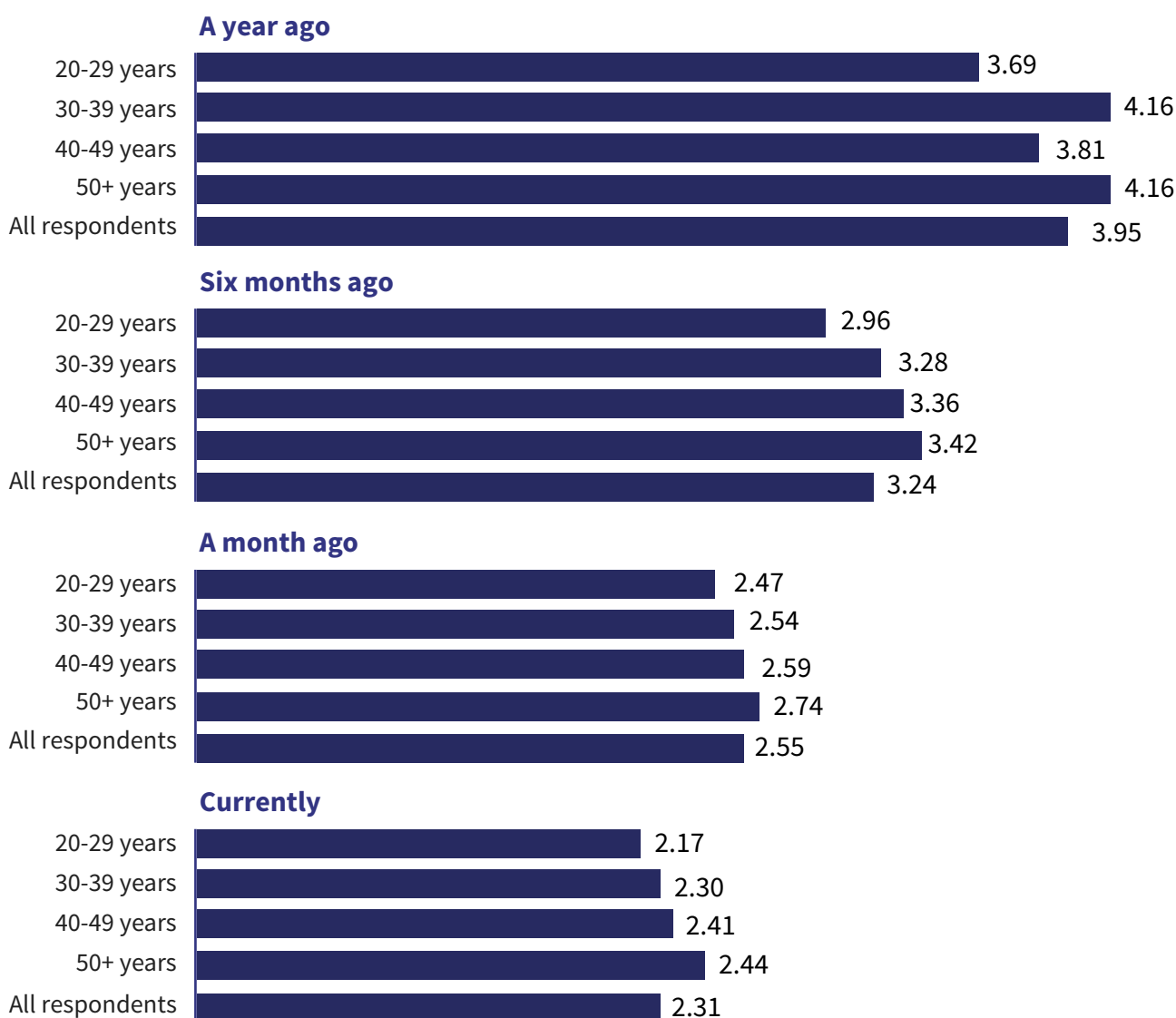


Using this method, we were able to calculate the average response to the survey question. For example, the average a year before the survey was 3.91, while the average at the time of the survey was 2.31. those aged 50 or older. Compared to 2020, fewer of the youngest respondents reported disruptions to classroom learning, while more of those aged 30-39 or 40-49 did so. This could be the result of younger respondents having better access to and ability to adopt technology when compared to older age groups, which would explain why age has been found to be negatively correlated with digital literacy and the readiness to transition to remote-learning (Krönke, 2020).

⁷ When asking our respondents to rate how affected their classroom learning had been by pandemic restrictions over time, we coded Not at all affected with the number 1, Not very affected with 2, Moderately affected with 3, Very affected with 4, and Extremely affected with 5. Using this method, we were able to calculate the average response to the survey question. For example, the average a year before the survey was 3.91, while the average at the time of the survey was 2.31.

In addition, as shown in Figure 3, while every age group reported declining disruptive effects over time the relative differences between age groups remained, with individuals aged 20-29 consistently the least likely to report severe effects on their classroom learning.

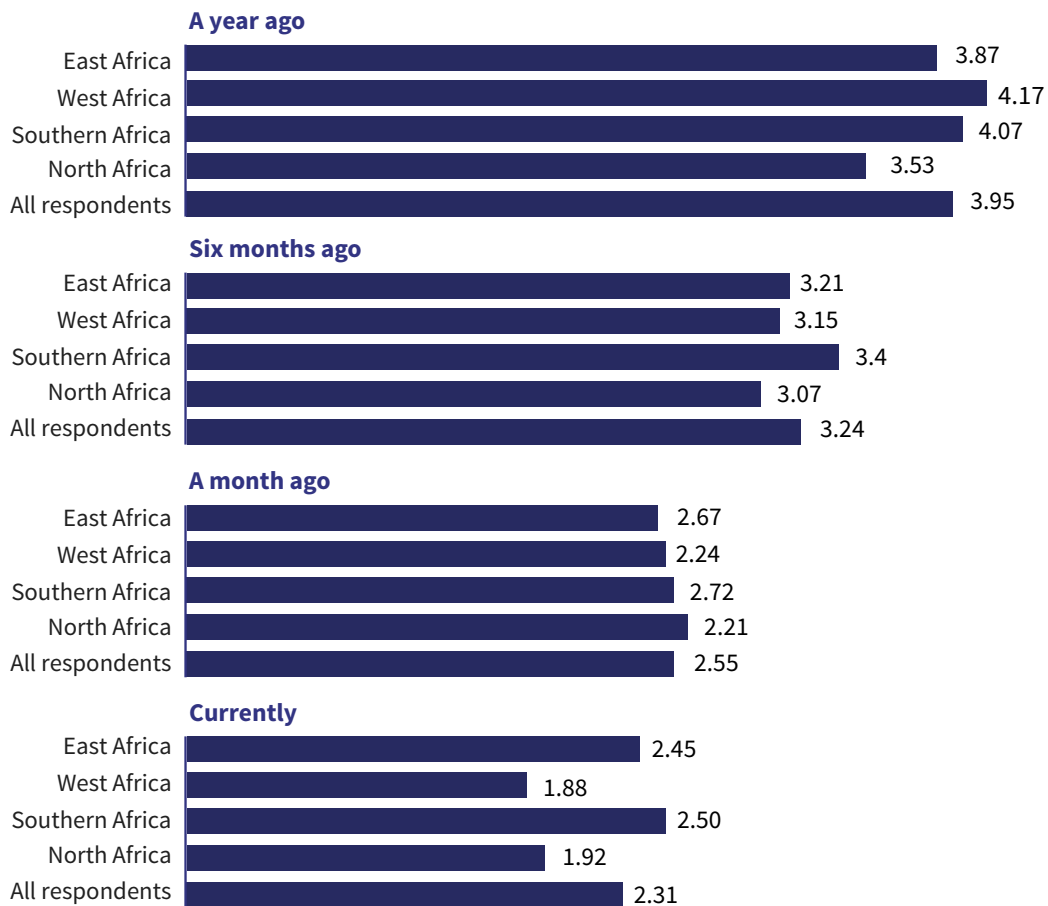
Figure 3. Average effects on classroom learning over time – by age group.



Geographical differences: Respondents in West Africa were least likely to report disruptive effects, while those from North Africa were the most likely to do so, with 89.2% of respondents in West Africa experiencing disruptions to their classroom learning, compared to 89.6% by respondents in East Africa, 90.9% of respondents in Southern Africa, and 93.3% of respondents in North Africa. While the order of regions reporting the highest disruptions to classroom learning differed from that in our 2020 survey, it is notable that a higher percentage of respondents in this survey reported disruption to their classroom learning than in 2020. This could be because as the duration of the pandemic extends, more and more institutions have been forced to respond to new and ongoing lockdown measures and restrictions.

As shown in Figure 4, respondents in different regions also reported different patterns in how the severity of effects on classroom learning changed over time. Respondents in West Africa were the most likely to say they were highly affected a year ago but were the least likely to say that they were highly affected at the time of the survey, potentially indicating more severe interruptions to classroom learning early in the pandemic but a faster return to learning as it was conducted before the pandemic.

Figure 4. Average effects on classroom learning over time – key regions.



Differences by university position: Limiting our focus to respondents in roles that involve significant classroom interaction, we found that fewer students (88.1%) reported disruptive effects on their classroom learning than instructors and teaching staff (93.75%). Over time, students also reported less severe effects on their classroom learning than did instructors and teaching staff as shown in Figure 5.

Figure 5. Average effects on classroom learning over time – key university positions.

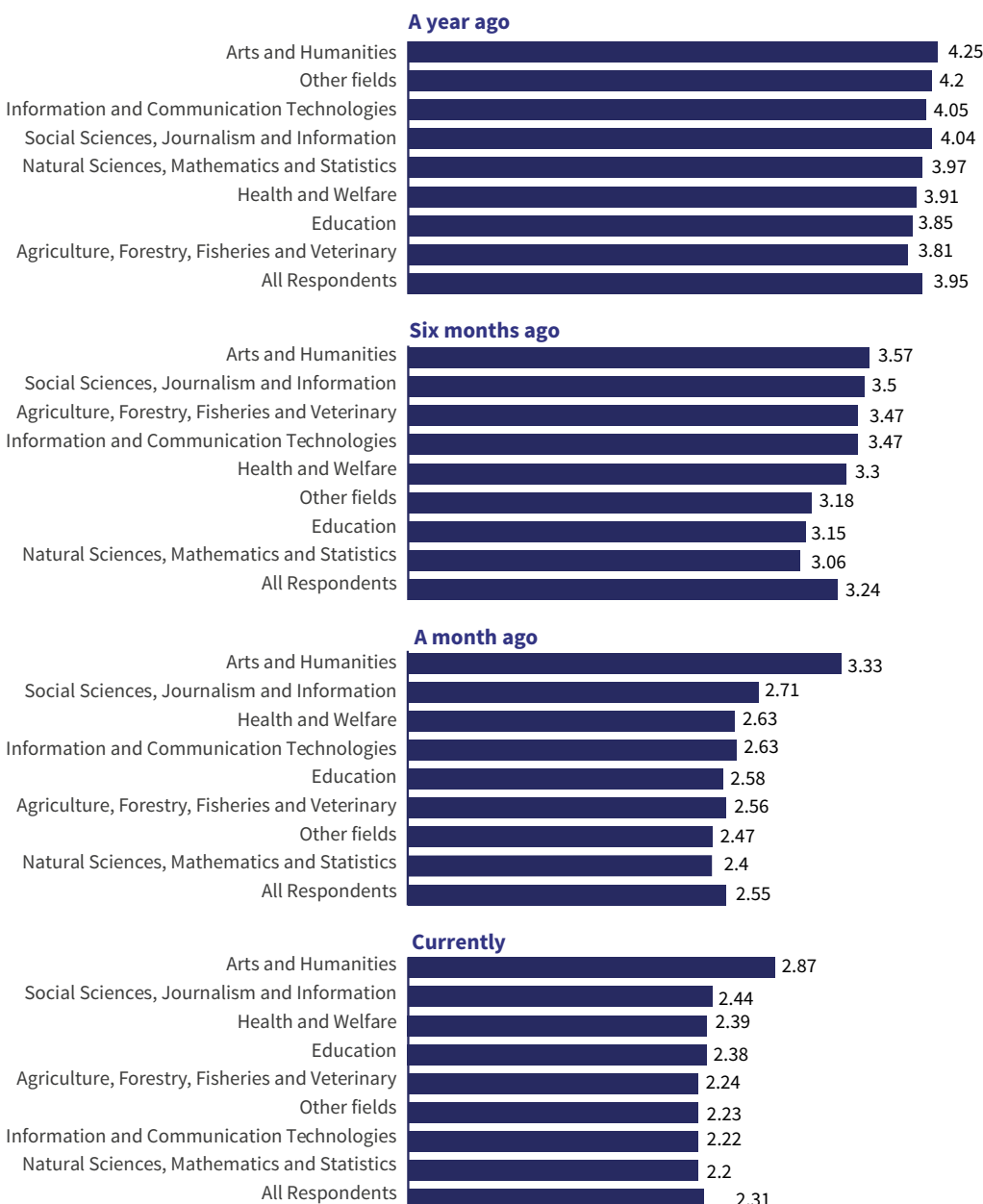


Since the reported differences between students and instructors were smaller than those between individuals aged 20-29 and other age groups, much of the difference was driven by the much larger proportion of individuals aged 20-29 among students.

Field differences: Individuals engaged in ‘Information and Communication Technologies’ and ‘Natural Sciences, Mathematics, and Statistics’ fields were the least likely to report disruptive effects on their classroom learning, at 84.2% and 85.3% respectively, while those working in ‘Agriculture, Forestry, Fisheries, and Veterinary’ and ‘Education’ fields were the most likely to do so, at 94.9% and 96.2% respectively.

When considering the data over time, as in Figure 6, we see several changes from period to period in the severity of the disruptions to classroom learning reported by individuals working in different fields. However, beginning six months prior to Mawazo’s 2021 survey individuals working in ‘Arts and Humanities’ and ‘Social Sciences, Journalism, and Information’ fields reported the most extreme effects on their classroom learning, on average, while individuals in the ‘Natural Sciences, Mathematics, and Statistics’ fields reported the least severe effects, on average.

Figure 6. Average effects on classroom learning over time – by field



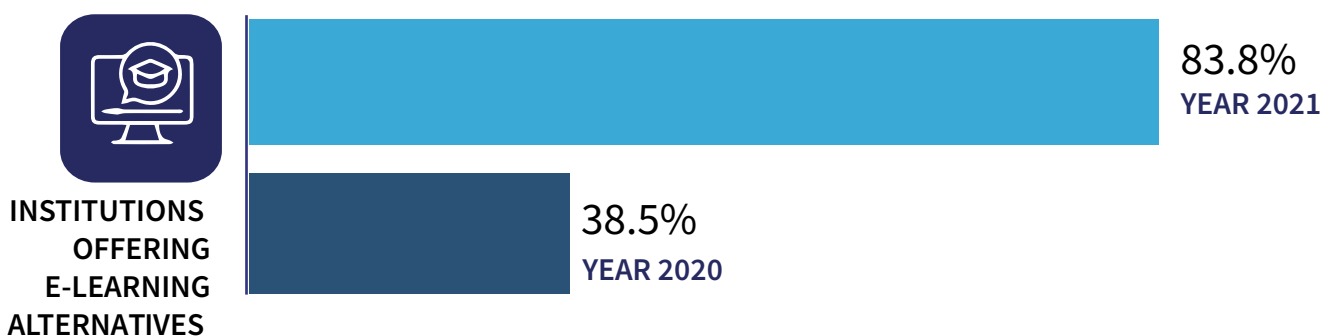
Within our sample, men, older individuals, individuals based in East and Southern Africa, and those working within ‘Arts and Humanities’ or ‘Social Sciences, Journalism, and Information’ fields appear to be the most affected by interruptions to their classroom learning compared to before the pandemic. While the gender differences may suggest that our sample is not representative of the region’s higher education sector, considering existing demographic data, determining whether these age and gender differences persist in different samples of researchers based in Africa could be a promising avenue for further research and exploration.

3.2 | The Adoption of E-Learning

Previous research shows that individuals in Africa face many barriers that limit e-learning adoption. Aside from low rates of internet access in the lowest income countries, for instance, recent evidence suggests that many on the continent were also ill-prepared for the transition to e-learning forced by the COVID-19 pandemic due to inadequate access to electronic devices and low digital literacy (Krönke, 2020). However, there is also evidence that even in sub-Saharan African countries with relatively high internet penetration, such as Kenya, many universities seeking to establish online learning facilities faced barriers even prior to the pandemic. These include unreliable or costly internet and poor infrastructure, unsupportive institutional policies, a lack of training among tutors and instructors, and budgetary constraints that all resulted in issues with delivering quality e-learning options (Kibuku et al., 2020; Nyerere, 2016).

A recent survey confirmed that these issues, namely limited infrastructure and “the lack of appropriate training to design and manage distance learning programmes” continue to be among the challenges African institutions face as they try to move teaching and learning online (eLearning Africa, 2020, p. 3). In this context, we sought to collect data about how successful research and higher education institutions have been at providing access to high quality e-learning options from the perspective of the individuals using them to teach and learn.

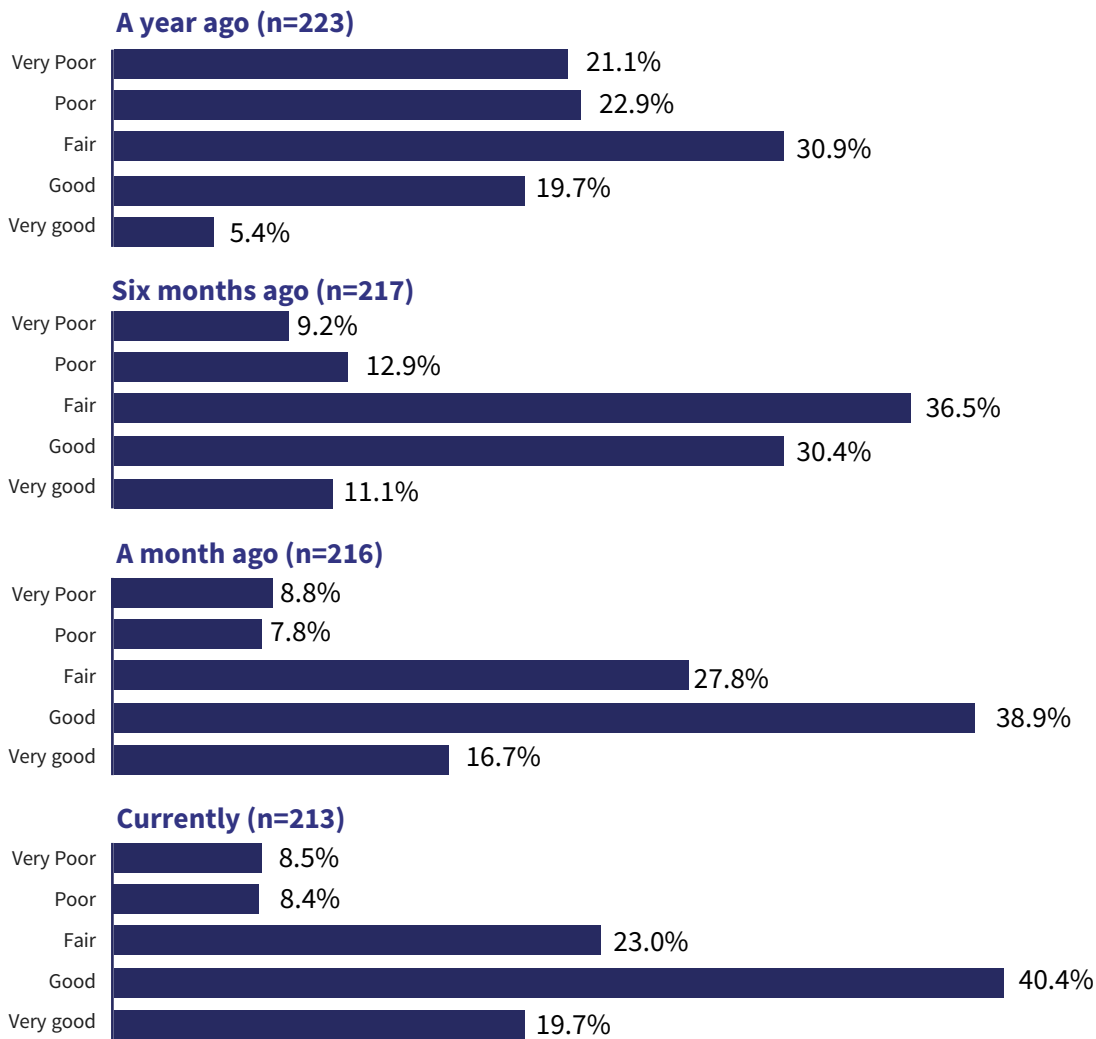
Overall, 83.8% of those surveyed reported being at institutions offering e-learning in response to the COVID-19 pandemic. While this may be inadequate considering the fact that 90.1% of respondents had experienced interruptions to their classroom, it represents a significant improvement over our April 2020 survey, where only 38.5% of respondents said their institutions were offering e-learning alternatives.



Moreover, when we asked respondents to rate the quality of the e-learning options available to them at different time periods in the year preceding the survey, they reported that the quality of the resources available to them has steadily improved over time (Figure 7). For instance, over the year prior to the survey, the average rating of the quality of e-learning options rose from between ‘Poor’ and ‘Fair’ (with a weighted average of 2.65), to between ‘Fair’ and ‘Good’ (with a weighted average of 3.54).⁸

⁸ When asking our respondents to rate the quality of the e-learning options available to them, we coded Very poor with the number 1, Poor with 2, Fair with 3, Good with 4, and Very good with 5. Using this method, we were able to calculate the average response to the survey question. For example, the average a year before the survey was 2.65, while the average at the time of the survey was 3.54.

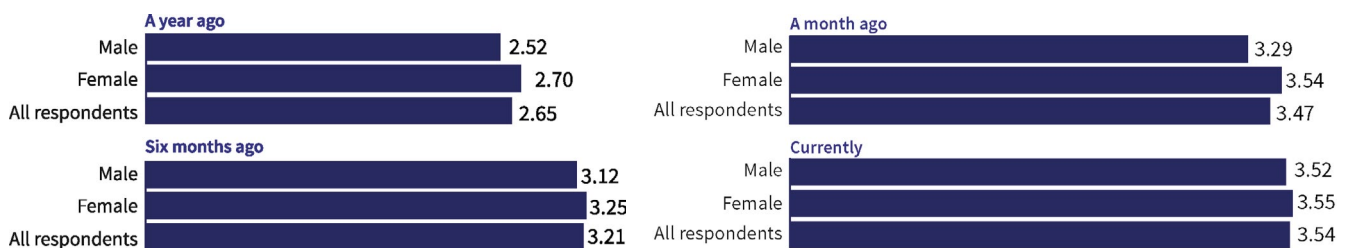
Figure 7. Quality of e-learning options available over time



As with the improvement in access to e-learning relative to 2020, the improvement in quality of e-learning options over time indicates that institutions are continually investing in improving their provisions. However, there are differences in both access and reported quality among demographic groups.

Gender differences: Women were less likely to report being at institutions offering e-learning than men, with 83% of women reporting that their institutions offered e-learning options compared to 85.7% of men. Figure 8 further shows that at each time period surveyed in the past year, women, on average, were more likely than men to rate the e-learning options available to them as high quality.

Figure 8. Average quality of e-learning options over time – by gender

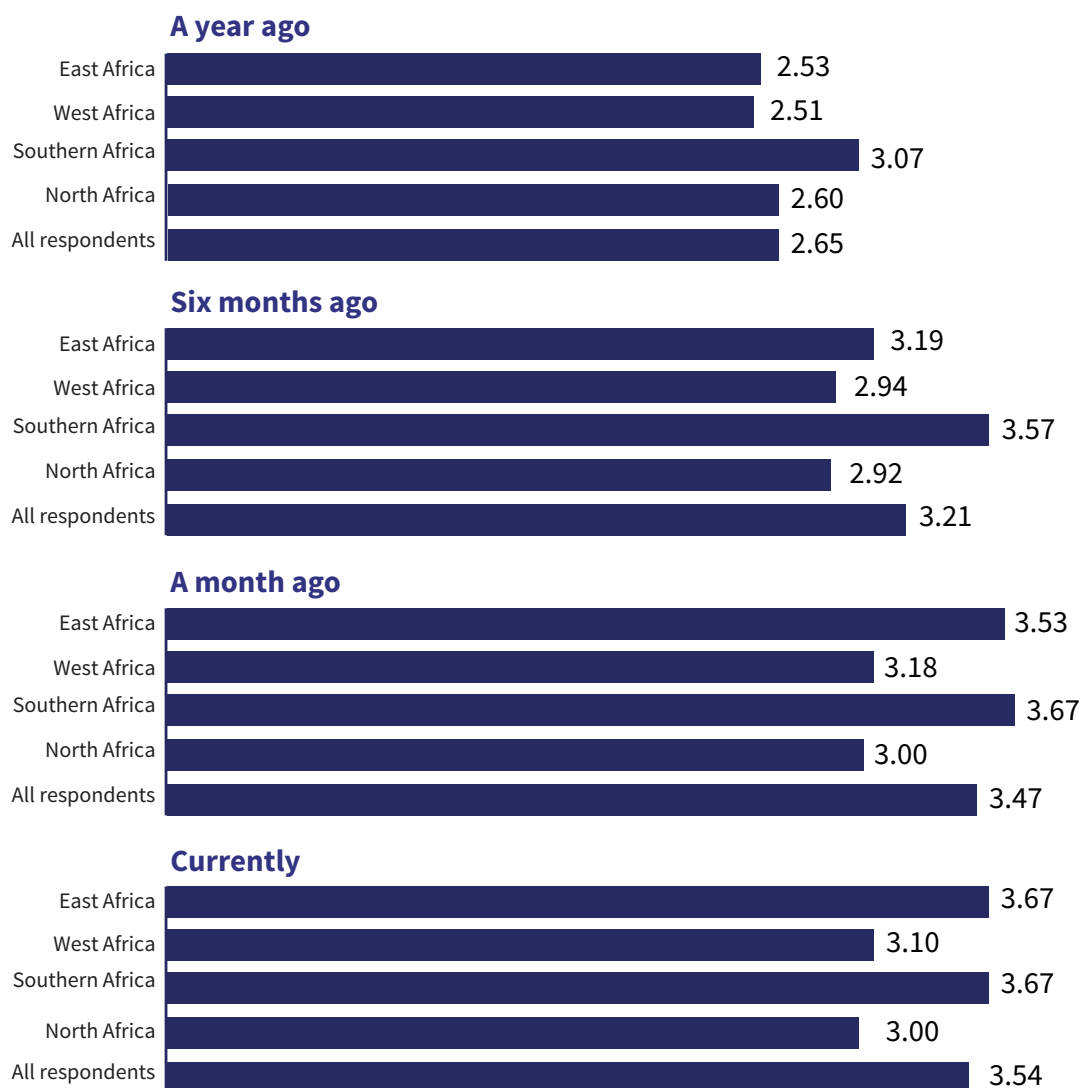


Age differences: Young respondents were more likely to be at institutions offering e-learning than older respondents, with 90.1% of individuals aged 20-29 at institutions offering e-learning compared to 85.1% of those aged 30-39, 77.9% of those 40-49, and 79% of those aged 50 or older. As there were no consistent patterns in the relative position of different age groups over time the data is not visualised below.

Geographical differences: Respondents in Southern Africa were most likely to report being at institutions offering e-learning and respondents in West Africa were the least likely to report that their institutions offered e-learning. In this instance the reported differences between regions were particularly large, with 93.5% of respondents in Southern Africa reporting their institutions offered e-learning options, compared to 86.9% of respondents in East Africa, 80% of respondents in North Africa, and 57.9% of respondents in West Africa. These large regional differences in access to e-learning in our 2021 survey match the findings from our 2020 survey, where 17.2% of respondents in West Africa reported being at institutions offering e-learning options compared to 43.1% of respondents in East Africa and 40.5% of respondents in Southern Africa.

As well as reporting lower access to e-learning, respondents in West and North Africa rated the e-learning options available to them as lower quality, on average, at each point in the past year addressed in the survey (Figure 9). They also reported smaller total improvements over the course of the year leading up to the survey than did respondents in other regions.

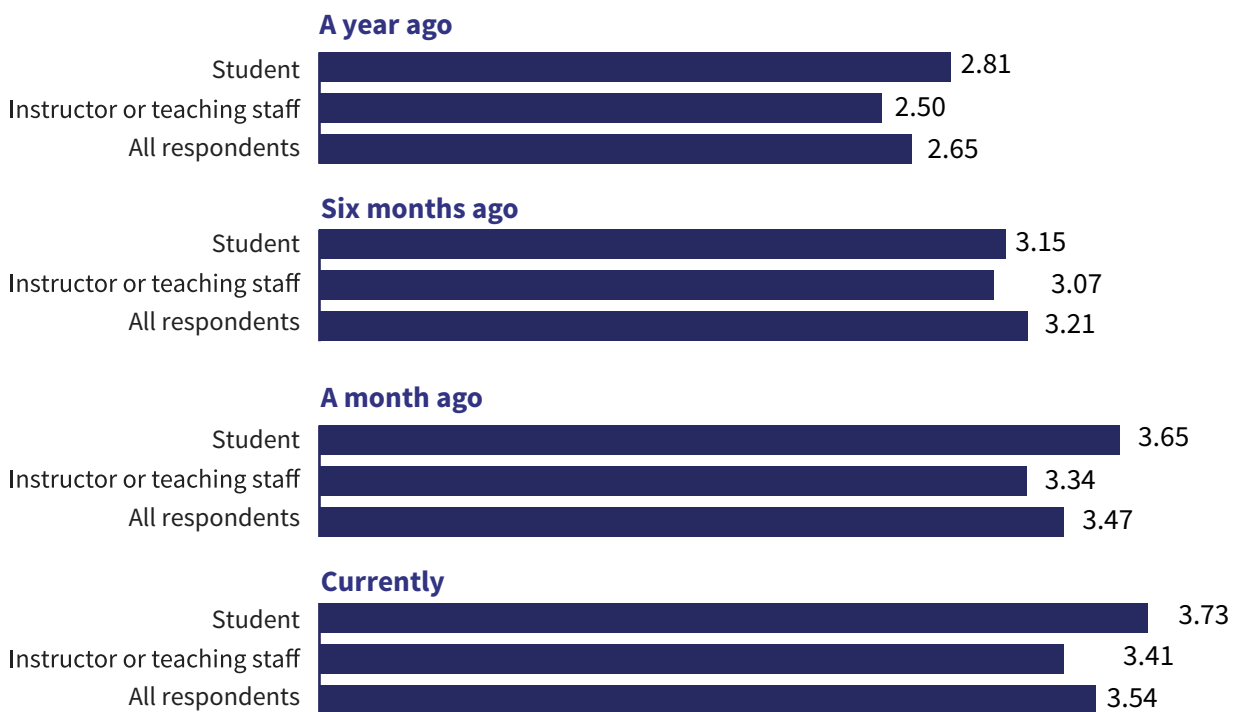
Figure 9. Average quality of e-learning options over time – key regions



Altogether, these results may suggest that e-learning provision has been poorly invested in by institutions in West Africa compared to those in other regions of the continent. The reported shortage of quality e-learning options among respondents in West Africa may also help explain why they appear to have returned to classrooms more quickly, as indicated by respondents in West Africa reporting the greatest declines to disruptions to classroom learning over time (Figure 4).

Differences by university position: Students were more likely to report being at institutions offering e-learning (89.1%) than instructors and teaching staff (85.7%). As reported in Figure 10 students also consistently rated the quality of e-learning options available to them more highly than instructors and teaching staff, this may have multiple explanations, including differences in satisfaction depending on whether respondents were using these e-learning tools to consume or deliver content as well as students being more familiar with e-learning platforms. Students also tend to be younger, highlighting the disparity in accessibility and adoption of technology, including e-learning, between age groups.

Figure 10. Average quality of e-learning options over time – key university positions



Field differences: Individuals in ‘Natural Sciences, Mathematics, and Statistics’ and ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields were the least likely to report being at institutions offering e-learning options, at 76.8% and 77.5% respectively, while those in ‘Education’ and ‘Arts and Humanities’ fields were the most likely to report access to e-learning options, at 88.5% and 88.9% respectively. It is possible that the observed difference is due to the fact that respondents in ‘Natural Sciences, Mathematics, and Statistics’ and ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields were the two groups most likely to be undertaking research involving in lab work, while those in ‘Education’ and ‘Arts and Humanities’ fields were both more likely than average to be undertaking research involving field work, activities likely to be reflecting in classes and training that would be difficult to continue online.

When comparing the quality of e-learning options available to individuals in different fields over time, the only consistent pattern noted was that individuals in ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields, on average, gave the lowest ratings for the quality of e-learning options available.

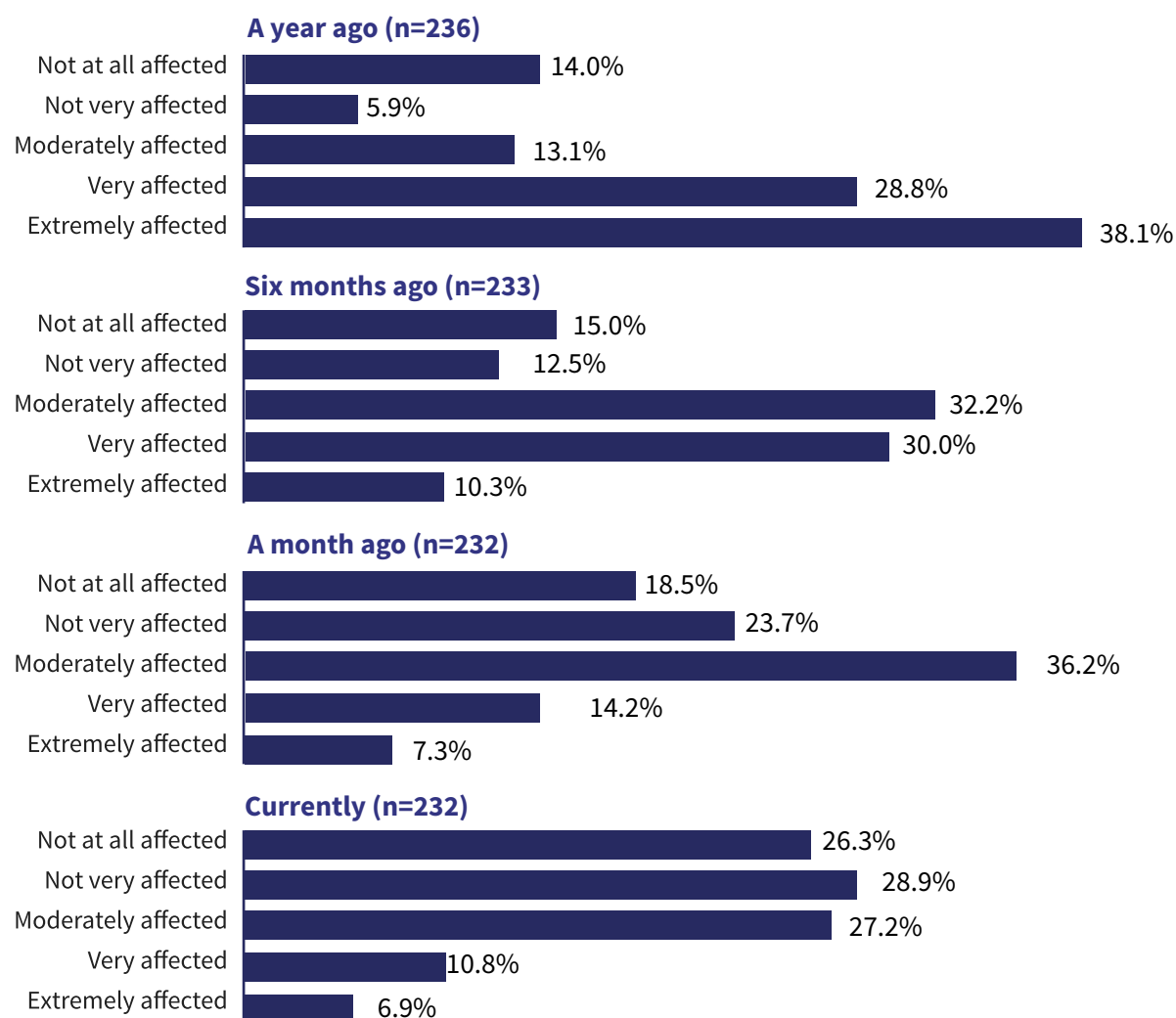
3.3 | The Impact on Research

Along with the impacts on classes, we sought to determine how many of our respondents were engaged in research, what kind of research activities they were engaged in, whether they have suspended their research activities at any time since the beginning of the pandemic, and how the effects of lockdowns had impacted their research over time.

Overall, 88% of respondents were conducting research at the time of the survey. Of these, 50.4% were involved in lab research and 72.5% in field research, while 72.2% reported that they had been forced to suspend their field or lab activities due to pandemic restrictions. However, as Figure 11 shows, respondents reported that the effects on their research activities were less severe by the time of the survey than they had been at either six months or one year before the survey, suggesting that research activities are gradually returning to the levels experienced prior to the pandemic.

Overall, respondents reported that their research had been between ‘Moderately affected’ and ‘Very affected’ (weighted average of 3.71) a year ago, and between ‘Not very affected’ and ‘Moderately affected’ at the time of the survey (weighted average of 2.43).⁹

Figure 11. Severity of pandemic effects on lab and field research activity over time

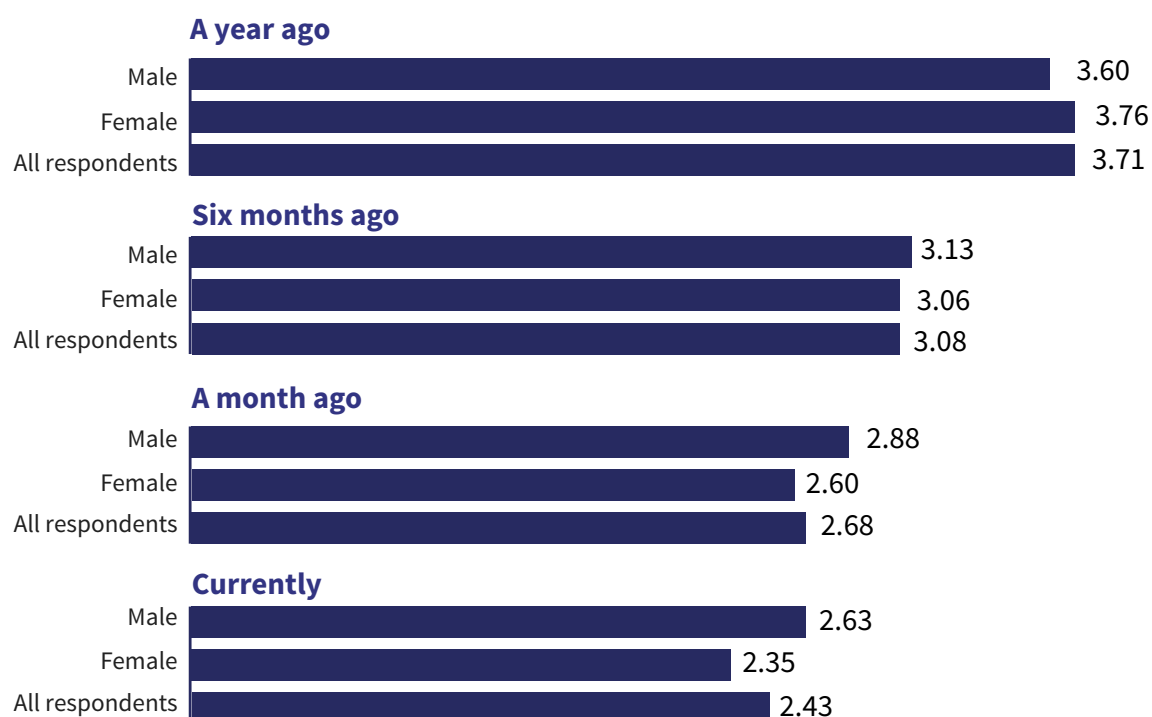


⁹ When asking our respondents to rate how affected their research had been by pandemic restrictions over time, we coded Not at all affected with the number 1, Not very affected with 2, Moderately affected with 3, Very affected with 4, and Extremely affected with 5. Using this method, we were able to calculate the average response to the survey question. For example, the average a year before the survey was 3.71, while the average at the time of the survey was 2.43.

Gender differences: We found that women reported being engaged in research at higher rates than men, with 91.1% of women conducting research compared to 80.3% of men. Women were also more likely to have suspended their research at some point between the beginning of the pandemic and taking our survey, with 73.1% reporting that they had to suspend field or lab activities compared to 70% of men.

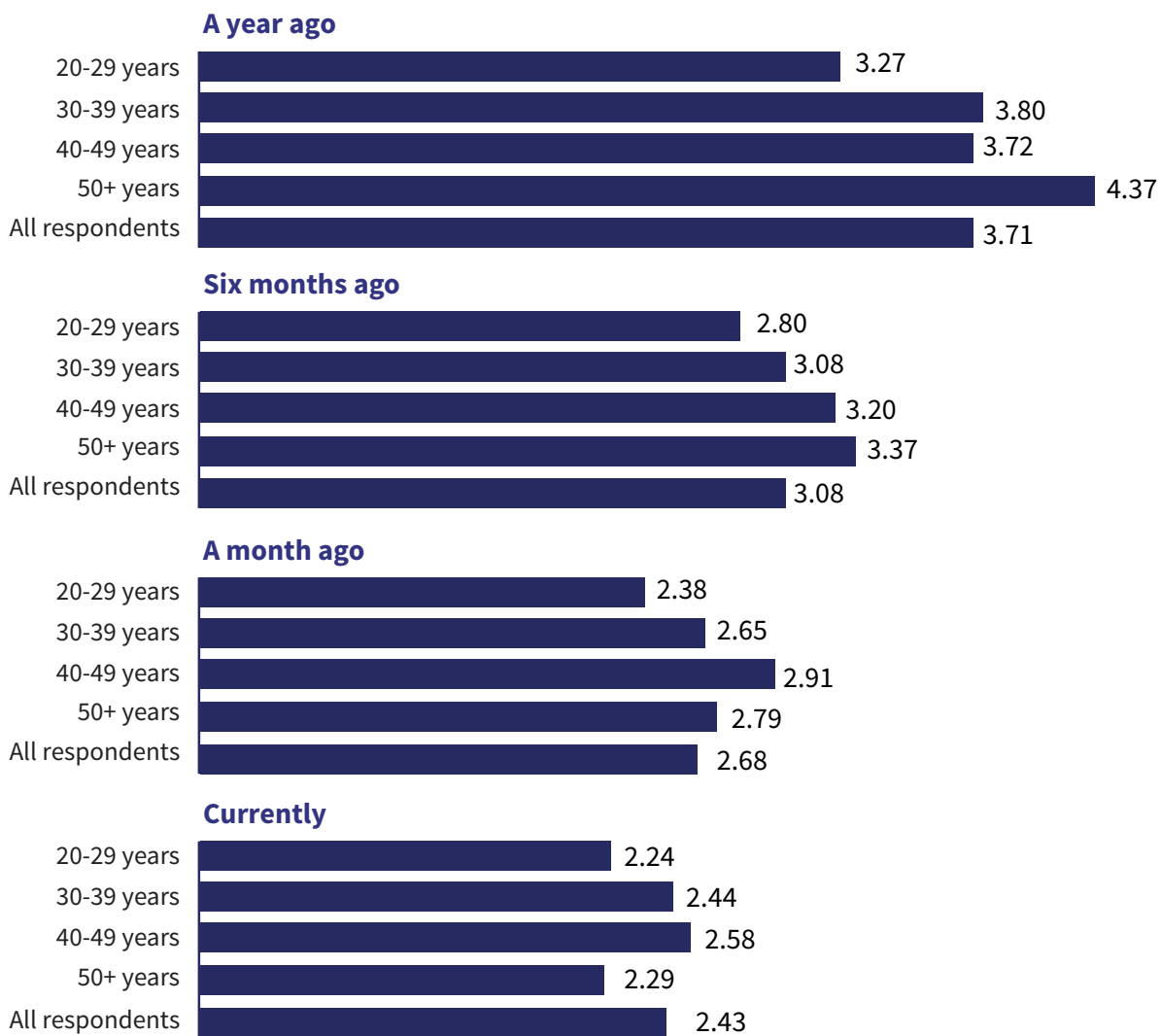
Despite this greater likelihood of having experienced research suspensions, Figure 12 reveals that women in our sample appeared to be returning to their pre-pandemic research activities faster than men: while women reported more severe effects on their research activity a year before the survey, they reported less severe effects than men for each subsequent time period we asked survey respondents to consider.

Figure 12. Average effects on research over time – by gender



Age differences: Younger age groups were more likely to be involved in research, with 90% of individuals aged 20-29 and 93.1% of those aged 30-39 conducting research, compared to 82.1% of those aged 40-49 and 79% of those aged 50 or older. Despite being the least likely to be involved in research, individuals older than 50 were the most likely to have suspended their lab or field activities due to pandemic restrictions, with 84.2% having done so compared to 64.7% of those aged 20-29, 75.8% of those aged 30-39, and 69.7% of those aged 40-49. As seen in Figure 13, the most consistent pattern in the data over time is that the youngest respondents, aged 20-29, always reported the least severe effects at each point in time we asked them to consider.

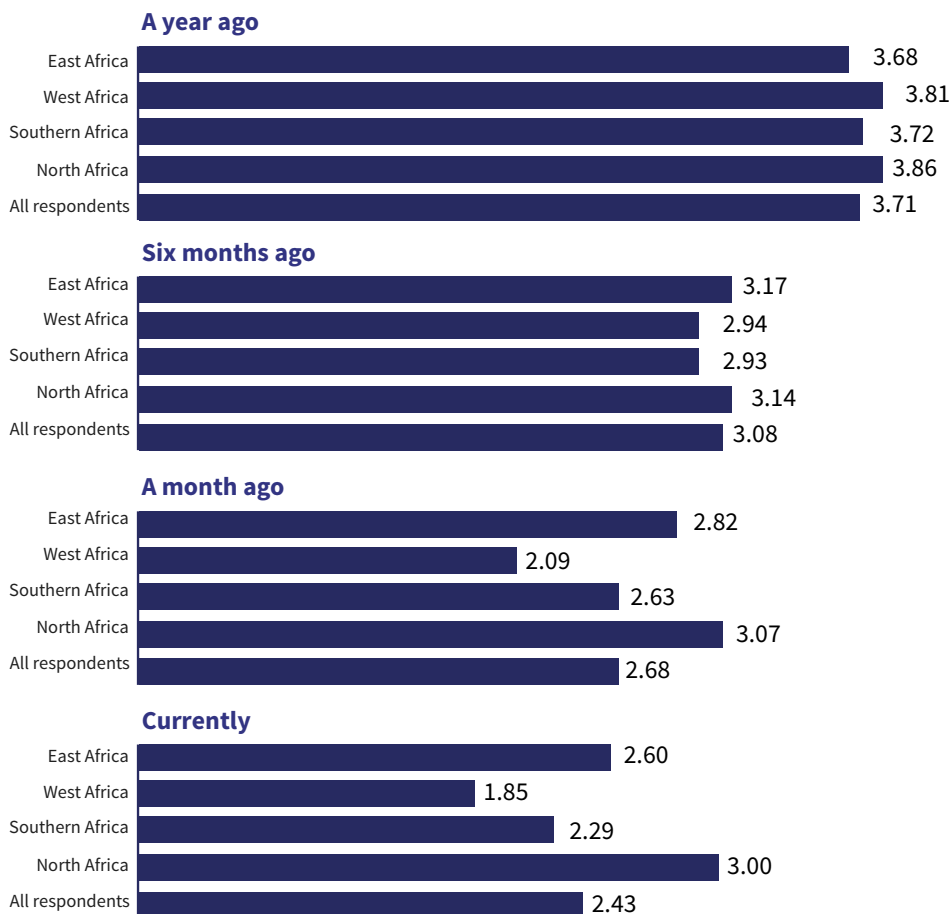
Figure 13. Average effects on research over time – by age



Geographical differences: Respondents in Southern Africa were the most likely to be involved in research and respondents in East African the least likely, with 93.9% of respondents in Southern Africa conducting research at the time of the survey compared to 92.3% of respondents in West Africa, 86.7% of respondents in North Africa, and 83.6% of respondents in East Africa. On the other hand, respondents in North and Southern Africa were the most affected by research suspensions, with 85.7% of those in North Africa reporting they have suspended their research at some point since the beginning of the pandemic compared to 72.92% of those in Southern Africa, 72.5% of those in East Africa, and 69.2% of respondents in West Africa.

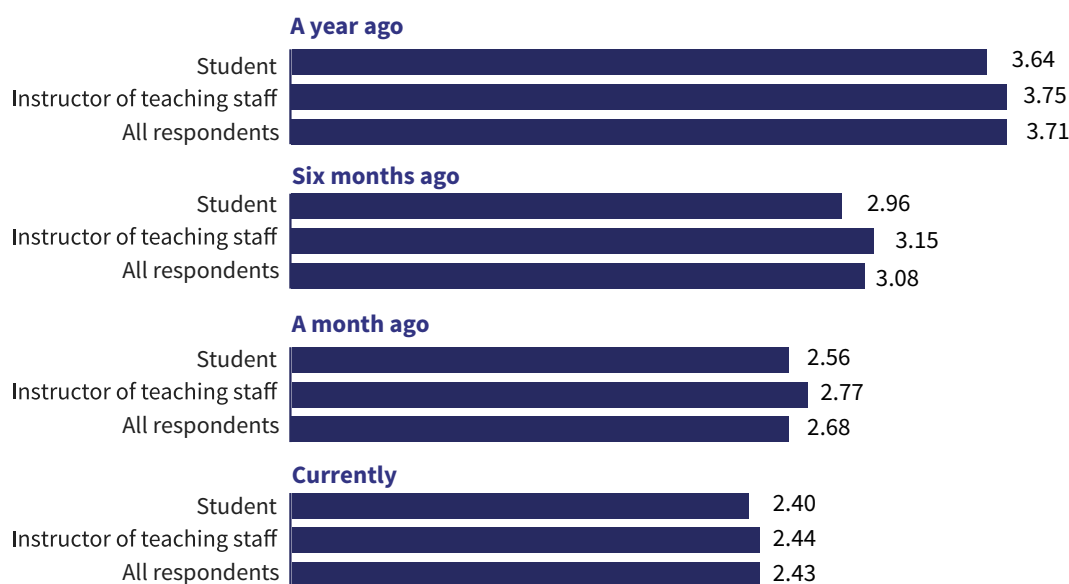
Broken down over time, as in Figure 14, we see that the gradual recovery of research activity has been inconsistent across regions. While respondents from all regions reported relatively similar impacts on their lab or field activities a year ago, respondents in West Africa and Southern Africa had seen the largest amelioration of those effects by the time of the survey.

Figure 14. Average effects on research over time – key regions



Differences by university position: At the time of the survey, 92.86% of students were in the process of conducting a research project compared to 86.61% of instructors and teaching staff. Students were also more likely to have suspended their research, with 72.16% of students conducting research reporting that they had their research suspended at some point since the pandemic began compared to 69.8% of instructors and teaching staff. Figure 15 shows that despite being more likely to be involved in research and to have suspended their research at some point since the pandemic began, students nevertheless reported the less severe effects on their research activity over each of the time periods the survey addressed.

Figure 15. Average effects on research over time – key university positions



Field differences: Respondents involved in ‘Natural Sciences, Mathematics, and Statistics’ and ‘Education’ fields were the most likely to be involved in research, at 94.2% and 93.5% respectively, while those involved in ‘Social Sciences, Journalism and Information’ and ‘Arts and Humanities’ fields were the least likely to be involved in research, at 79.3% and 73.7% respectively.

In contrast, respondents in ‘Arts and Humanities’ and ‘Health and Welfare’ fields were the most likely to report having to suspend their research, at 84.2% and 81.8% respectively, while those in the ‘Natural Sciences, Mathematics, and Statistics’ and ‘Information and Communication Technologies’ fields were least likely to report suspending research activities, at 65.2% and 42.9% respectively.

Finally, we see in Figure 16, that individuals in ‘Arts and Humanities’ and ‘Social Sciences, Journalism, and Information’ fields reported facing the most severe effects on their lab or field research activities at each point over the past year. Since individuals in these two fields were also the most likely to be involved in fieldwork, this may suggest that research involving fieldwork has been particularly slow to recover, perhaps due to the fact that it often takes place in contexts that are more difficult to monitor and control than labs.

Figure 16. Average effects on research over time – by field

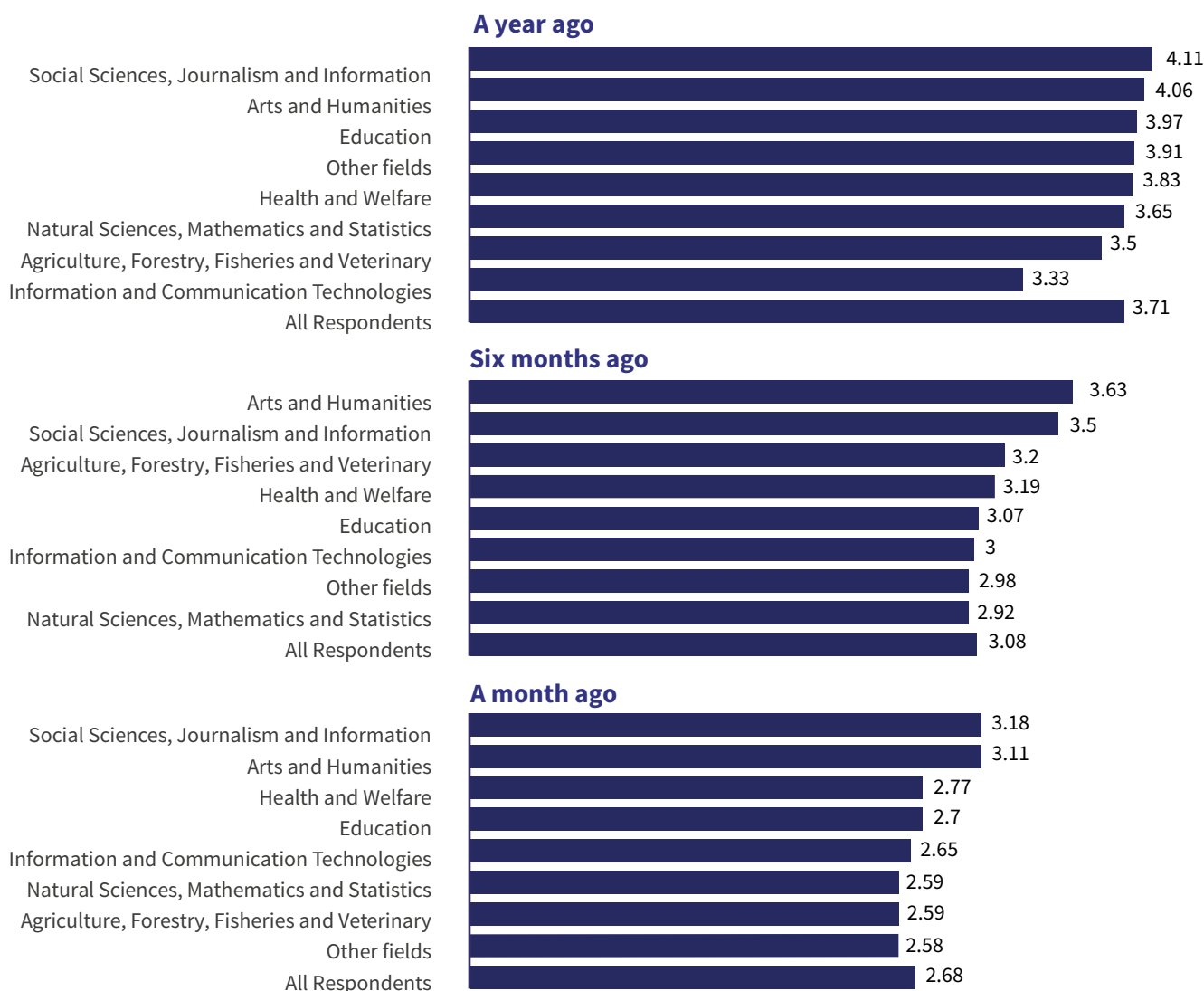
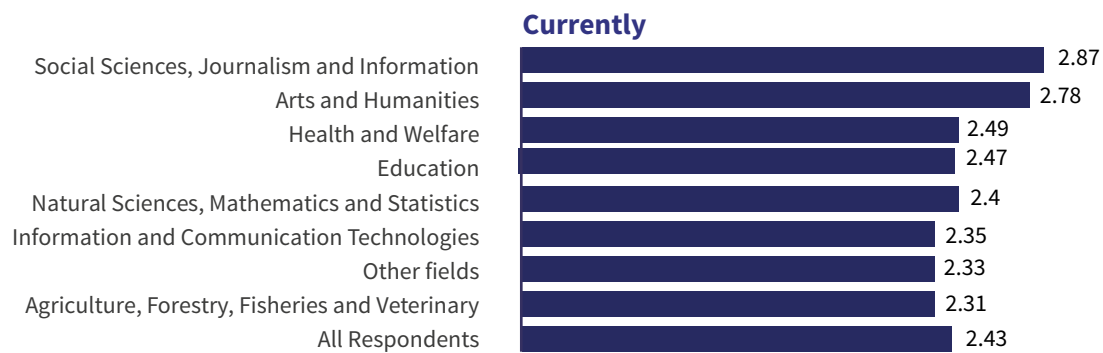


Figure 16. Average effects on research over time – by field, cont..





4

The Individual Effects of the Pandemic



In the first part of this survey report, we focused on how our respondents' classroom learning and research were affected by institutional responses to the COVID-19 pandemic. However, as discussed in the introduction of this report, there is also evidence that individuals working in research and higher education have seen unequally distributed impacts on their careers as a result of care and child-rearing responsibilities, decreased opportunities for academic travel, and a more unpredictable environment for funding and employment. To explore the scale of some of these effects in African countries, we asked our respondents about how the pandemic affected their work-life balance, productivity, and career opportunities.

4.1 | Impacts on Productivity and Work-Life Balance¹⁰

Overall, 82.4% of respondents have been able to continue their academic studies or work from home during the COVID-19 pandemic. However, as shown in Figure 17, most respondents have seen a loss in productivity due to working from home. Further, as shown in Figure 18, a significant portion of respondents have seen an increase in their family and domestic responsibilities.

Figure 17. Effects of working from home on productivity

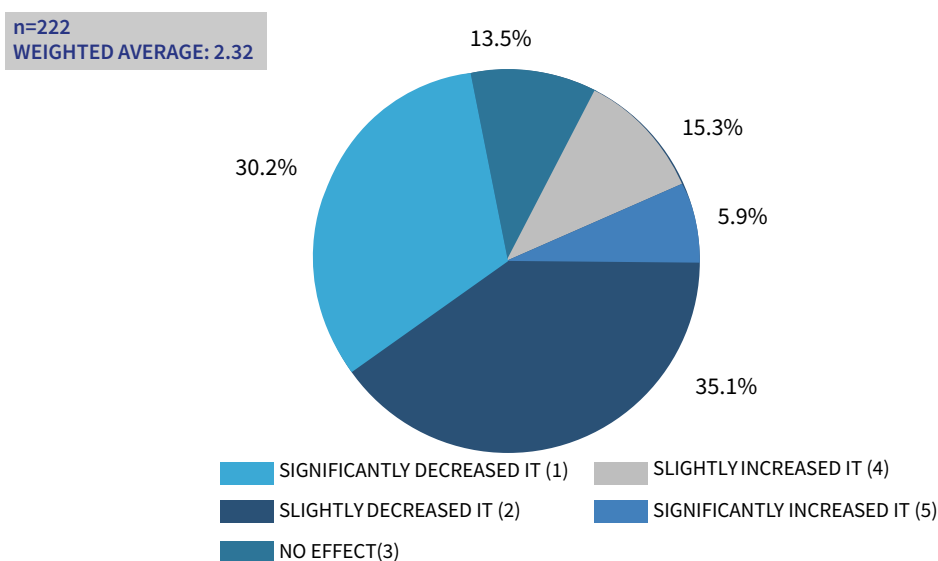
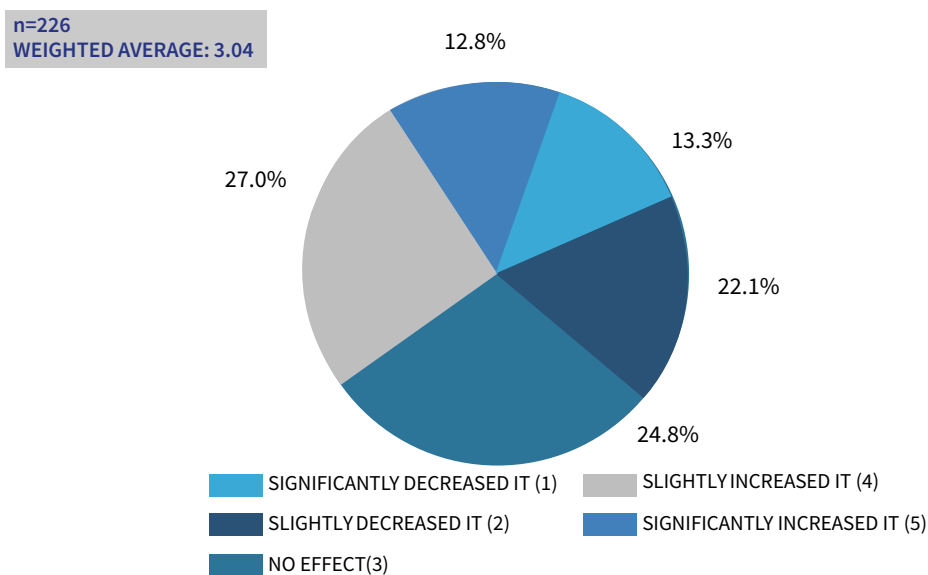


Figure 18. Effects of working from home on family and domestic responsibilities



¹⁰ In this section of the survey, most questions used the following scale: Significantly decreased it (which was numerically coded as 1), Slightly decreased it (2), No effect (3), Slightly increased it (4), Significantly increased it (5). As before, this coding allows us to compare average responses between groups.

However, in keeping with the research discussed in the introduction to this report, we observed important differences in the ability to work from home and the distribution of family and domestic responsibilities reported by different demographics.

Gender differences: In our sample, slightly more women (82.49%) than men (80.3%) reported that they were able to continue their research, academic, or professional work from home during the COVID-19 pandemic. However, men reported smaller productivity losses while working from home than women (Figure 19), which may be explained by the fact that on average women’s family and domestic responsibilities increased even as men’s family and domestic responsibilities decreased (Figure 20). This suggests that in Africa, as other regions, women are bearing a disproportionate share of domestic labour and their careers may be suffering as a result.

Figure 19. Avg. effects on productivity – by gender



Figure 20. Avg. effects on domestic responsibilities – by gender



Age differences: In general, the youngest and oldest respondents seemed most vulnerable to the transition to working from home. Individuals aged 50-and-over were the least likely to report being able to continue working from home, with 76% of individuals aged 20-29 reporting that they were able to continue working from home compared to 84% of those aged 30-39, 89.2 % of those 40-49, and 65% of those aged 50 or older.

While working from home, respondents in every age group reported decreases in their productivity, with individuals aged 30-39 reporting the largest losses and individuals aged 40-49 reporting the smallest productivity losses (Figure 21). Interestingly, individuals aged 40-49 were the best able to manage losses to their productivity despite the fact they reported the greatest increase in family and domestic responsibilities (Figure 22).

Figure 21. Avg. effects on productivity – by age



Figure 22. Avg. effects on domestic responsibilities – by age



Geographical differences: Respondents in East Africa were the most likely to be able to continue their work from home, with 87.7% of them continuing to work from home compared to 83.7% of respondents in Southern Africa, 76.3% of those in West Africa, and 53% of respondents in North Africa. Among respondents who were able to continue working from home, respondents in West Africa reported the largest productivity losses (Figure 23). Only respondents in North Africa reported, on average, a decrease in their family and domestic responsibilities while working from home (Figure 24).

Figure 23. Avg. effects on productivity – key regions



Figure 24. Avg. effects on domestic responsibilities – key regions



Differences by university position: Students were slightly less likely to be able to continue their work from home, with 80% able to continue working from home compared to 83.9% instructors and teaching staff. The effects on productivity and domestic responsibilities were more mixed, students reported greater productivity losses while working from home (Figure 25) but also reported a simultaneous decrease in their family and domestic responsibilities (Figure 26).

Figure 25. Avg. effects on productivity – key positions



Figure 26. Avg. effects on domestic responsibilities – key positions



Field differences: Individuals involved in ‘Information and Communication Technologies’ and ‘Arts and Humanities’ fields were the most likely to be able to continuing their work from home, at 90.5% and 88.2% respectively, while those in ‘Health and Welfare’ and ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields were the least likely to be able to do so, at 73.8% and 75% respectively. This could be explained by the nature of the facilities required for their research, as we found that respondents in ‘Agriculture, Forestry, Fisheries, and Veterinary’ and ‘Health and Welfare’ fields were more likely than not to be undertaking research involving lab work and research involving field work, while research involving lab work was uncommon among respondents in ‘Arts and Humanities’ fields and a majority of respondents in ‘Information and Communication Technologies’ fields were not engaged in research involving either lab or field work.

On top of being able to continue working from home, individuals in ‘Arts and Humanities’ fields also reported the smallest losses in productivity (Figure 27), despite reporting the greatest increase in family and domestic responsibilities (Figure 28).

Figure 27. Avg. effects on productivity – by field

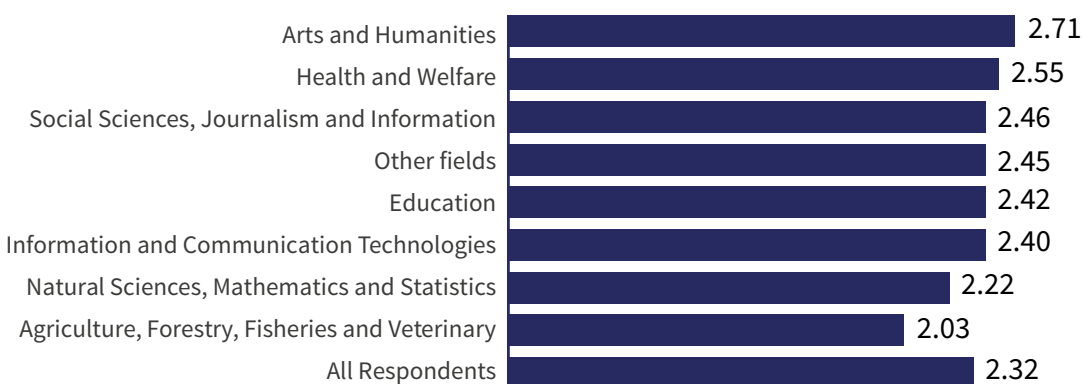
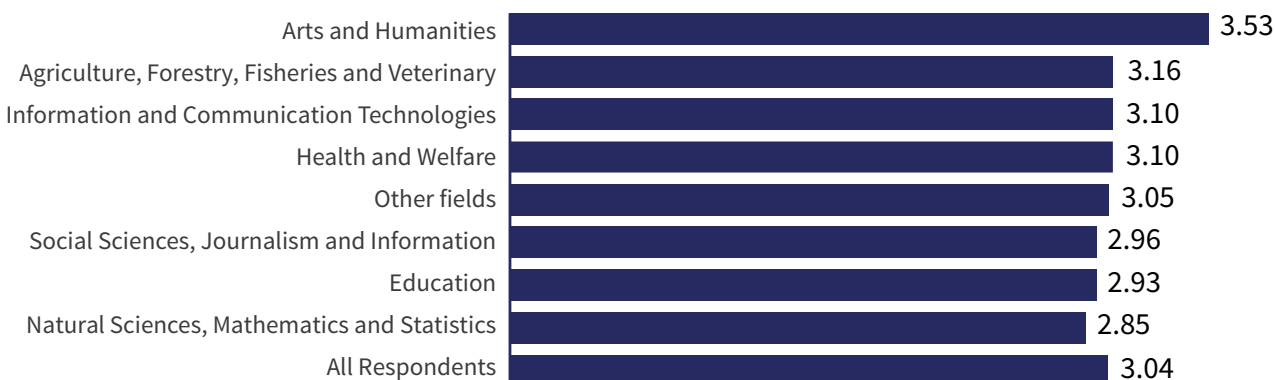


Figure 28. Avg. effects on domestic responsibilities – by field



In line with established research on the distribution of domestic labour during the pandemic, individuals in the two fields with the lowest proportions of women in our survey (Education and Social Sciences, Journalism, and Information) reported some of the greatest decreases in family and domestic responsibilities, however, contrary to our expectations, respondents working in ‘Natural Sciences, Mathematics, and Statistics’ fields reported the greatest decline in family and domestic responsibilities, despite the fact that, in our sample, 89.5% of individuals in the field were women. Further research and exploration is required to explain these unexpected results.

4.2 | Impacts on Career Growth

To understand how our respondents' career trajectories are being affected by the COVID-19 pandemic, we asked them to rate how the pandemic has affected their ability to access promotions and job opportunities, as well as a range of resources and relationships associated with success in research and higher education in Africa, for example, research funding, mentorship, training, mobility, and collaboration.¹¹

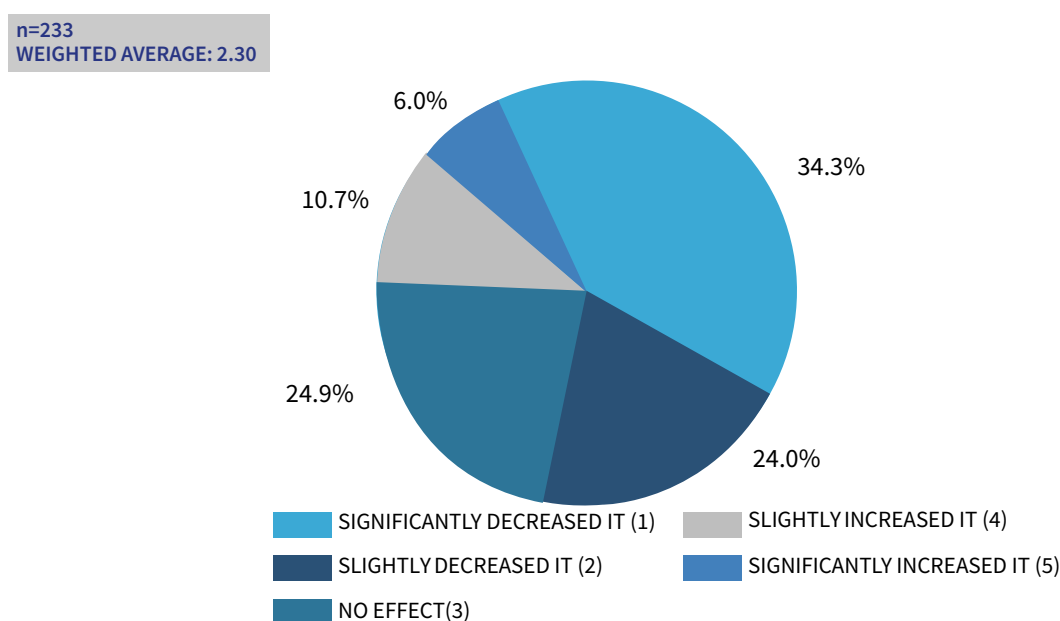
From the results discussed on the following pages, the greatest losses in opportunities for academic career growth were experienced by men, younger respondents, students, and respondents in fields under the category of 'Social Sciences, Journalism, and Information' fields. Our results also show that while respondents in every region of Africa with adequate data were severely affected by decreases in their mobility and opportunities for collaboration, those from North Africa were especially hit by restrictions that limited travel or the ability to collaborate with researchers outside of the countries in which they are based.

While the finding that women were relatively less affected than men runs contrary to some of the evidence discussed in the introduction, in Section 1 of this report we noted that the women in our sample may not have been representative of the wider population. If this is the case, further research would be required to determine the scale and direction of gender differences in the ability to access the key career-enablers discussed below. However, the disproportionate effects of the pandemic on career growth for younger respondents and students appears to provide evidence that in Africa, as in other regions of the world, these demographics are especially vulnerable to the changes forced onto the research and higher education sector by the COVID-19 pandemic.

4.2.1 | Career Opportunities

Overall, our respondents reported a decrease in their ability to access promotions and job opportunities (Figure 29). The scale of the reported effects here is even more significant than the reported losses in productivity: not only is the average across the entire sample of respondents lower, but respondents were also most likely to report that their ability to access career opportunities was significantly decreased by the pandemic.

Figure 29. Effects on the ability to access promotions, employment, and other career opportunities



¹¹ As in the previous section, we used the following scale: Significantly decreased it (1), Slightly decreased it (2), No effect (3), Slightly increased it (4), Significantly increased it (5).

Gender differences: Men reported slightly larger losses in their ability to access promotions and career opportunities than women, with an average response of 2.09 compared to 2.38 for women.

Age differences: Respondents aged 20-29 reported the largest losses in their ability to access promotions and career opportunities while those aged 30-39 reported the smallest losses. The average response among those aged 20-29 was 2.18 compared to 2.35 for individuals aged 30-39, 2.31 for individuals aged 40-49, and 2.30 for individuals aged 50 or older.

Geographical differences: Respondents in North Africa reported the largest losses in their ability to access promotions and career opportunities while those in West Africa reported the smallest losses. The average response among respondents in North Africa was 2.00 compared to 2.27 for respondents in East Africa, 2.31 for respondents in Southern Africa, and 2.54 for respondents in West Africa.

Differences by university position: Students reported larger losses in their ability to access promotions and career opportunities than instructors and teaching staff. The average response among them was 2.03 compared to 2.40 for instructors and teaching staff.

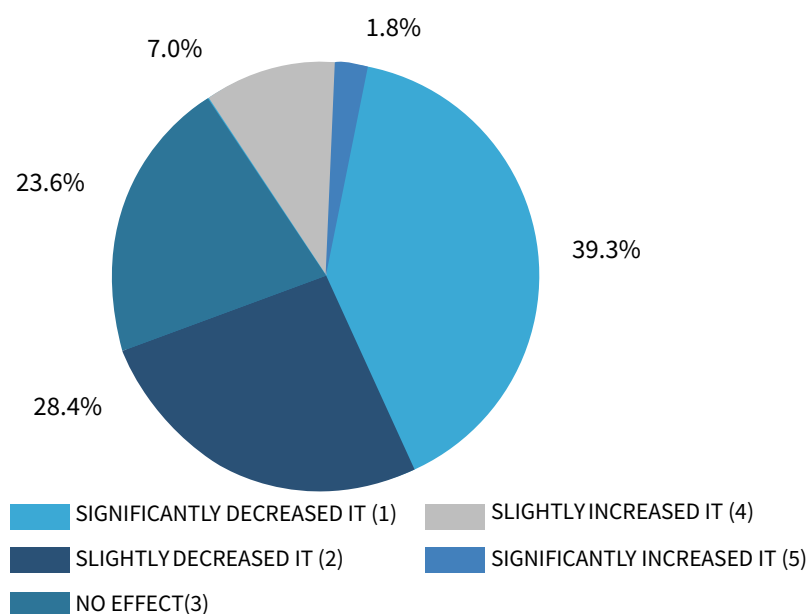
Field differences: Respondents involved in ‘Social Sciences, Journalism, and Information’ fields reported the largest losses in their ability to access promotions and career opportunities, with an average response of 1.93, followed by those in ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields, with an average of 2.07. In contrast, individuals in ‘Natural Sciences, Mathematics, and Statistics’ fields reported the smallest losses in access to promotions and career opportunities, with an average response of 2.62, followed by individuals in ‘Arts and Humanities’ fields, with an average response of 2.56.

4.2.2 | Research Funding

As shown in Figure 30, our respondents reported even more significant decreases in their ability to secure research funding than they did losses in their ability to access new career opportunities. This, too, appears to be consistent with evidence that research funding may have become more scarce since the COVID-19 pandemic began.

Figure 30. Effects on the ability to access to research funding

n=299
WEIGHTED AVERAGE: 2.04



Gender differences: Men reported slightly larger losses in their ability to secure research funding, with an average response of 1.94 compared to 2.07 for women respondents.

Age differences: Respondents aged 40-49 reported the largest losses in their ability to secure research funding and those aged 50 or older reported the smallest losses. The average response for the pandemic effects on the ability to secure research funding among respondents aged 40-49 was 1.87 compared to 2.04 for individuals aged 20-29, 2.10 for individuals aged 30-39, and 2.30 for individuals aged 50 or older.

Geographical differences: Respondents in North Africa reported the largest losses in their ability to secure research funding, while those in West Africa reported the smallest losses. The average response among respondents in North Africa was 1.64 compared to 2.02 for those in East Africa, 2.06 for respondents in Southern Africa, and 2.16 for respondents in West Africa.

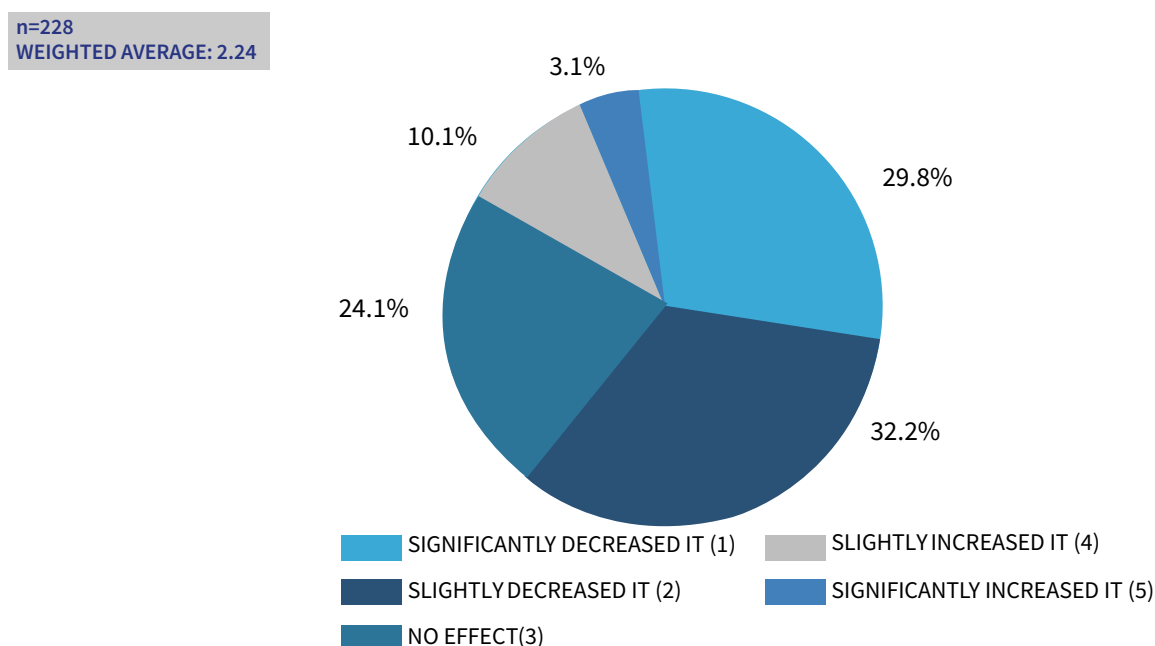
Differences by university position: Instructors and teaching staff reported only slightly larger losses in their ability to secure research funding than students. The average response among instructors and teaching staff was 2.04 compared to 2.06 for students.

Field differences: Respondents in ‘Social Sciences, Journalism, and Information’ fields reported the largest losses in their ability to secure research funding, with an average response of 1.74, followed by individuals in ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields, with an average of 1.78. By contrast, individuals in ‘Arts and Humanities’ fields reported being the least affected by the reduced ability to secure research funding, with an average response of 2.25, followed by individuals in the ‘Natural Sciences, Mathematics, and Statistics’ fields, with an average of 2.14.

4.2.3 | Mentorship

As shown in Figure 31, our respondents also reported a general decrease in their ability to access opportunities for mentorship, which is a key enabler for successful academic careers particularly in the opinions of young researchers (Friesenhahn & Beaudry, 2014; van Balen et al., 2012).

Figure 31. Effects on access to mentorship



Gender differences: Men reported larger losses in their ability to access mentorship opportunities than women respondents, with an average response of 1.95 compared to 2.35 for women.

Age differences: Respondents aged 20-29 reported the largest losses in their ability to access mentorship opportunities, while those aged 50 or older reported the smallest losses, a pattern that may be explained by the fact that younger respondents are more likely to be engaged with and seek out mentors. The average response among those aged 20-29 was 1.95 compared to 2.25 for individuals aged 30-39, 2.19 for individuals aged 40-49, and 2.95 for individuals aged 50 or older.

Geographical differences: Respondents in West Africa reported the largest losses in their ability to access mentorship opportunities and those in Southern Africa reported the smallest losses. The average response among respondents in West Africa was 2.03 compared to 2.09 for respondents in North Africa, 2.29 for respondents in East Africa, and 2.32 for respondents in Southern Africa.

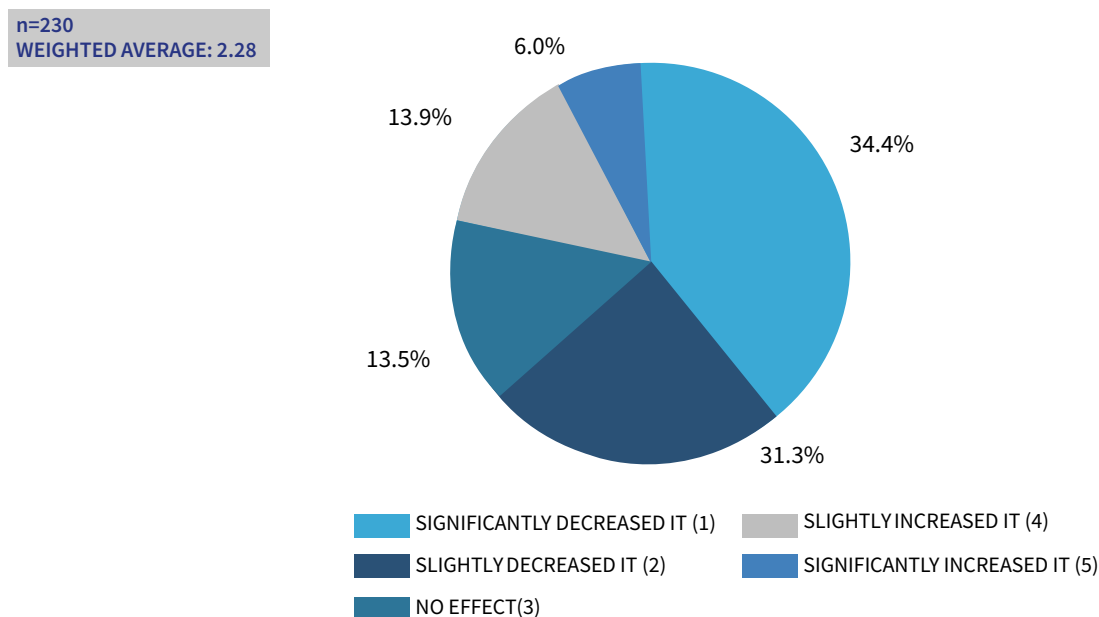
Differences by university position: Students reported larger losses in their ability to access mentorship opportunities than instructors and teaching staff. The average response among students was 2.12 compared to 2.28 for instructors and teaching staff.

Field differences: Respondents in ‘Social Sciences, Journalism, and Information’ fields reported the largest losses in their ability to access mentorship opportunities, with an average response of 1.96, followed by individuals in ‘Arts and Humanities’ fields, with an average response of 2.19. In contrast, individuals in ‘Natural Sciences, Mathematics, and Statistics’ fields reported being the least affected group, with an average response of 2.47, followed by respondents in ‘Health and Welfare’ fields, with an average response of 2.40.

4.2.4 | Training

As shown in Figure 32, our respondents also reported a decrease in their ability to access training. This is especially important as training, and especially in skills such as leadership, is perceived by African researchers to be an important and hard to access necessity for career success (Beaudry et al., 2018). Training is also often understood to empower vulnerable groups in research such as women and young people (Education Sub Saharan Africa, 2021).

Figure 32. Effects on access to training



Gender differences: Men reported larger losses in their ability to access academic and professional training opportunities than women, with an average response of 2.00 compared to 2.38 for women.

Age differences: Respondents aged 30-39 reported the largest losses in their ability to access academic and professional training and those aged 50 or older reported the smallest losses. The average response among those aged 30-39 was 2.13 compared to 2.38 for individuals aged 20-29, 2.24 for individuals aged 40-49, and 2.90 for individuals aged 50 or older.

Geographical differences: Respondents in North Africa reported the largest losses in their ability to access academic and professional training and respondents in Southern Africa the smallest losses. The average response among respondents in North Africa was 2.18 compared to 2.20 for respondents in East Africa, 2.35 for respondents in West Africa, and 2.46 for respondents in Southern Africa.

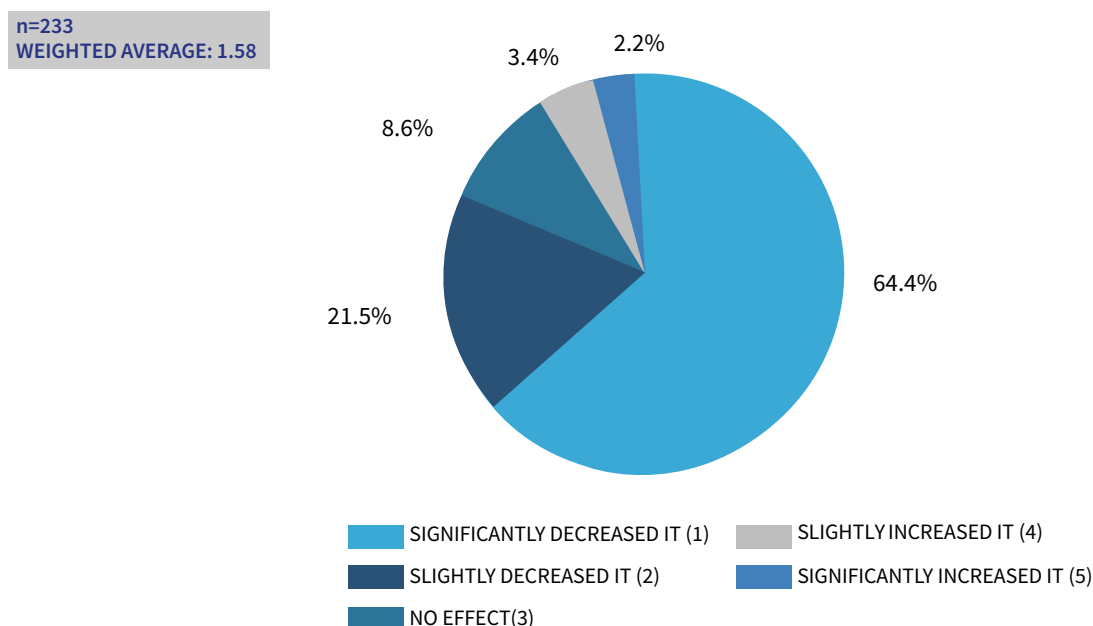
Differences by university position: Students reported larger losses in their ability to access academic and professional training than instructors and teaching staff. The average response among students was 2.24 compared to 2.34 for instructors and teaching staff.

Field differences: Respondents engaged in ‘Social Sciences, Journalism, and Information’ fields reported the largest losses in their ability to access academic and professional training, with an average response of 1.85, followed by individuals in ‘Education’ fields, with an average response of 2.17. In contrast, individuals in ‘Natural Sciences, Mathematics, and Statistics’ fields were the least affected group, with an average response of 2.52, followed by respondents in ‘Health and Welfare’ fields with an average response of 2.33.

4.2.5 | Mobility

Overall, Figure 33 shows that on average our respondents reported very large losses in mobility, which we defined as the ability to move or travel to pursue research and higher education opportunities. This is consistent with the evidence discussed in the introduction to this report, especially the findings in Organization for Women in Science for the Developing World (2020). This is likely directly due to the strict travel restrictions put in place by governments during the pandemic.

Figure 33. Effects on mobility



Gender differences: Men reported larger losses in mobility, with an average response of 1.48 compared to 1.61 for women.

Age differences: Respondents aged 30-39 reported the largest losses in mobility while those aged 50 or older reported the smallest losses. The average response among those aged 30-39 was 2.13 compared to 2.38 for individuals aged 20-29, 2.24 for individuals aged 40-49, and 2.90 for individuals aged 50 or older.

Geographical differences: Respondents in North Africa reported the largest losses in mobility while respondents in Southern Africa reported the smallest losses. The average response among respondents in North Africa was 2.18 compared to 2.20 for respondents in East Africa, 2.35 for respondents in West Africa, and 2.46 for respondents in Southern Africa. The comparatively small effects on the mobility of respondents in Southern Africa is especially interesting as researchers in the region are the least likely to have careers based entirely in their region of origin (Blom et al., 2016).

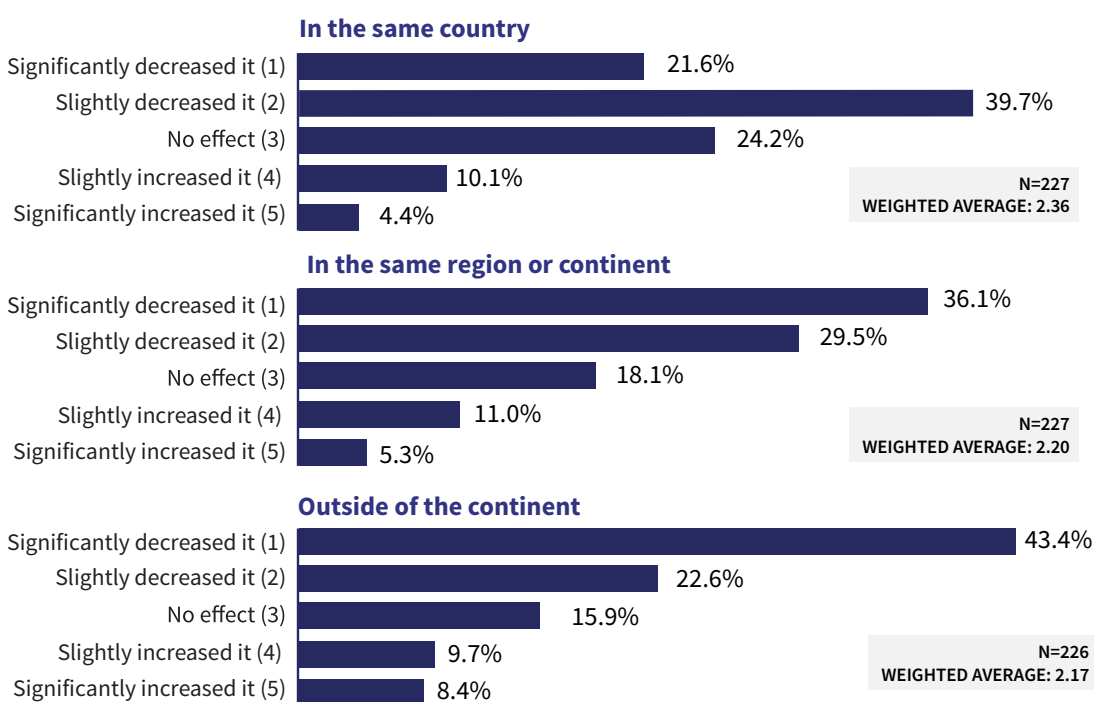
Differences by university position: Students reported larger losses in mobility than instructors and teaching staff. The average response among students was 2.24 compared to 2.34 for instructors and teaching staff.

Field differences: Respondents in ‘Social Sciences, Journalism, and Information’ fields reported the largest losses in mobility, with an average response of 1.85, followed by individuals in ‘Education’ fields, with an average response of 2.17. In contrast, individuals in the ‘Natural Sciences, Mathematics, and Statistics’ fields were the least affected group, with an average response of 2.52, followed by individuals in ‘Health and Welfare’ fields with an average response of 2.33.

4.2.6 | Collaboration

Finally, as seen in Figure 34, our respondents have been less able to collaborate with other researchers since the pandemic began. The scale of the effects on collaboration are reported as being the least severe for collaborations with researchers in the same country, and most severe for collaborations with researchers outside of Africa. This pattern emerges no matter which demographic lens is used to consider the data.

Figure 34. Effects on collaboration with researchers in different geographies



Gender differences: Men reported larger losses than women in their ability to collaborate with researchers in the same country, with an average response of 2.22 for men compared to 2.41 for women. However, the trend shifted for international collaboration, with women reporting larger losses than men both in their ability to collaborate with researchers in the same region or continent (an average response of 2.17 for women compared to 2.26 for men) and in their ability to collaborate with researchers outside of the continent (an average response of 2.14 for women compared to 2.27 for men).

Age differences: Respondents aged 40-49 reported the largest losses in their ability to collaborate with researchers in the same country while those aged 50 or older reported the smallest losses. The average response among those aged 40-49 was 2.25 compared to 2.36 for individuals aged 20-29, 2.30 for individuals aged 30-39, and 3.05 for individuals aged 50 or older.

The same pattern of impacts emerged for other types of collaboration. For collaboration with researchers in the same region or continent, the average was 2.08 for individuals aged 40-49 compared to 2.65 for individuals aged 50 or older, with individuals aged 20-29 or 30-39 reporting intermediate averages of 2.35 and 2.12, respectively. For collaboration with researchers outside of Africa, the average was 2.04 for individuals aged 40-49 compared to 2.80 for individuals aged 50 or older, with individuals aged 20-29 or 30-39 once again reporting intermediate averages of 2.20 and 2.12 respectively.

Geographical differences: Respondents in Southern Africa reported the largest losses in their ability to collaborate with researchers in the same country (2.31) while respondents in Northern Africa reported the smallest losses (2.55). Between these poles, the average responses among respondents in East and respondents in West Africa were very similar, at 2.39 and 2.40 respectively.

In contrast, respondents in North Africa appear to have been most severely affected by restrictions that limited international collaboration and respondents in West Africa the least severely affected. For collaboration in the same region or continent, the average response among respondents in North Africa was 1.91 compared to 2.13 for respondents in Southern Africa, 2.20 for respondents in East Africa, and 2.53 for respondents in West Africa. For collaboration outside of the continent, the average response among respondents in North Africa was 1.82 compared to 2.06 for respondents in Southern Africa, 2.24 for respondents in East Africa, and 2.38 for respondents in West Africa. The comparatively small impacts suffered by respondents in West Africa may be due to the fact that research produced in West Africa is significantly less likely to be the product of international collaborations than research produced in other regions of the continent (Blom et al., 2016).

Differences by university position: Students reported larger losses than instructors and teaching staff in their ability to collaborate with researchers across all geographies, with an average response of 2.23 for collaboration in the same country compared to 2.39 for instructors and teaching staff, an average response of 2.19 for collaboration in the same region or continent compared to 2.20 for instructors and teaching staff, and an average response of 2.12 for collaboration outside of the continent compared to 2.18 for instructors and teaching staff.

Field differences: Focusing on differences between fields, respondents working in 'Agriculture, Forestry, Fisheries, and Veterinary' fields reported the largest losses across all types of collaboration while those in 'Arts and Humanities' fields reported the smallest losses. However, the effects in other disciplinary groupings were more variable.

For collaboration with researchers in the same country, the largest impacts were reported by individuals in 'Agriculture, Forestry, Fisheries, and Veterinary' fields (with average of 2.2), followed by individuals in the

‘Social Sciences, Journalism, and Information’ fields (with an average of 2.22). In contrast, individuals in ‘Arts and Humanities’ fields reported the smallest impacts (with an average of 2.73), followed by individuals in ‘Information and Communication Technologies’ fields (with an average of 2.63).

For collaboration with researchers in the same region or continent, the largest impacts were again reported by individuals in ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields (with average of 1.95), followed by individuals in ‘Social Sciences, Journalism, and Information’ fields (with an average of 2.11). In contrast, individuals in ‘Arts and Humanities’ fields reported the smallest impacts (with an average of 2.63), followed by individuals in ‘Health and Welfare’ fields (with an average of 2.56).

Finally, for collaboration with researchers outside of Africa, the largest impacts were reported by individuals in ‘Agriculture, Forestry, Fisheries, and Veterinary’ fields (with average of 1.83), followed by individuals in ‘Natural Sciences, Mathematics, and Statistics’ fields, (with an average of 2.13). In contrast, individuals in ‘Arts and Humanities’ fields once again reported the smallest impacts (with an average of 2.67), followed by individuals in ‘Education’ fields (with an average of 2.52).



5

Conclusion



This report has described many of the major findings of the Mawazo Institute's 2021 survey on the impact of the COVID-19 pandemic in Africa's research and higher education sector. Among the findings discussed in previous sections of this report are differences in the access to and quality of e-learning options across regions of Africa, differences in the extent to which researchers based in Africa of different ages are experiencing disruptions to classroom learning and research activity, differences in the extent to which researchers of different genders based in Africa are experiencing the balance between work and personal responsibilities while working from home, differences in the extent to which researchers based in Africa have experienced losses of access to opportunities for career growth, and differences in the extent to which researchers based in Africa of different ages engaged in different fields have seen impacts on their research, training, mobility, and collaboration due to pandemic restrictions.

As the survey that produced these results did not use probability sampling methods to identify respondents due to limitations on time and resources, it is important to acknowledge that some of the differences found between groups may reflect sampling bias rather than true underlying trends in the wider population of individuals engaged in research and higher education in Africa. Therefore, we must be careful about drawing inferences from the results discussed in previous sections.

Nevertheless, if the aim of the survey was to generate a dataset that might serve to prompt research and informed action by developing actionable, locally-contextualised knowledge of the effects of the pandemic on Africa's research and higher education sector, we hope that we have taken steps towards this goal. We hope that governments, universities, and nonprofit organisations will all find valuable information in what we have found regarding which areas of pre-existing weakness in African research and higher education that appear to be under additional stress due to the pandemic (for example, access to research funding, mentorship, and training, and the high reliance on international collaborations to produce research), which pre-existing inequalities appear to be worsening and threatening recent progress towards equity (for example, unequal gendered divisions of family and domestic responsibilities), and which areas have seen significant improvements worth celebrating and supporting (for example, the increased accessibility and quality of e-learning options).

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About Mawazo Institute

The Mawazo Institute is a Nairobi-based non-profit that leverages experts, citizens, and decision makers to inspire the big ideas our future needs.

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